8361

Smart*Touch*®
Controller
Service Manual

C15444500A
(4/01).00

METTLER TOLEDO®

Customer Feedback

Attention: Retail Quality Manager - MTWR

If you have a problem with one of our products or publications, or just a suggestion on how we can serve you better, please fill out this form and send it to the address on the opposite side of this page (U.S. postage paid), or fax it to us at **(614) 438-4355**. Your feedback will help us to improve product performance, quality, and service.

Part / Product Name:	
Part / Model Number:	**Date:**
Provided By:	
Customer Name:	
Address:	
Phone Number:	**Fax Number:**

Your comments:

Do not write in space below. For METTLER TOLEDO use only. Response (if appropriate) and corrective action taken.

METTLER TOLEDO 8361 Service Manual C15444500A 4/01

METTLER TOLEDO
Scales & Systems
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Training

This publication is provided as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product. Information regarding METTLER TOLEDO Technical Training may be obtained by calling (614) 438-4940 or writing to:

METTLER TOLEDO, Training Dept., 1900 Polaris Parkway, Columbus, Ohio 43240

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Revision History

Part Number	Date	Revisions
A15444500A	**1/00**	Add Frequent Shopper, Ethernet, and Security Label. Update Cutting Test operation.
B15444500A	**5/00**	Added STEM DHCP and Ethernet RF sections in Chapter 3.
C15444500A	**4/01**	Added Multi-Range, Updated Client Ethernet Setup and RF. Removed Operating Instructions Chapter.

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PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

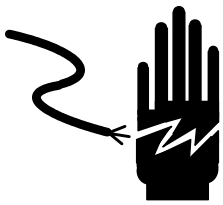
FOLLOW these instructions carefully.

SAVE this manual for future reference.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

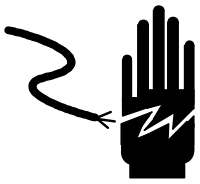
ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



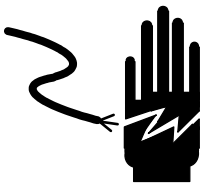
WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.



WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.



WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING THE FUSE OR SERVICING.

CAUTION

BEFORE CONNECTING OR DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT, ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF THE EQUIPMENT OR BODILY HARM.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

Change Notice

METTLER TOLEDO® reserves the right to make refinements or changes without notice.

CONTENTS

1 Specifications

General Description

ISO9001

This product was developed, produced and tested in a Mettler Toledo facility that has been audited and registered according to international (ISO 9001) quality standards.

The Model 8361 **Smart*Touch*®** is a Programmable Controller designed for use in a Prepack Meat Department in the Retail Food Environment. This product is designed for use in both automatic and hand applied label applications. The Mettler Toledo Model 8361 **Smart*Touch*®** Controller is a part of a programmable scale system that offers very flexible programming and formatting with an easy-to-use user interface. Only valid keys and prompts are displayed on the LCD screen as needed (Figure 1-1). Since the Model 8361 Touchscreen contains no mechanical parts, there are no keys or keyboards to wear out. The pulldown menus and a word processor-type Extra Text editor in the **Smart*Touch*®** Master reduce operator-training time. In each of five standard label sizes, 2.1″ to 4.2″ (53 mm to 107 mm), there are eight label styles for each of three PLU types. These styles can be selected from any of the 77 standard (including 3 for 1.9″/48 mm labels) or 30 custom formats.

Figure 1-1: Model 8361 Smart*Touch*® Front View

The Model 8361 **Smart*Touch*®** Controller is available as a TNET Satellite/Ethernet Client, a Satellite with a **Smart*Touch*®** TNET Master, or Satellite/Client with the STEM installed. The Model 8361 **Smart*Touch*®** TNET Master can be networked to the Models 355, 2450, 8305, 8360, 8361, 8422, 8423, 8427, 8450, 8460, and 8461 TNET satellites.

The Model 8361 STEM (**Smart*Touch*®** Ethernet Master) will support up to 25 Ethernet Clients and up to 25 TNET Satellites. The Ethernet Client can connect to the STEM or to the METTLER TOLEDO® Scale Server.

The TNET satellites are connected to the master controller with standard phone cable using an RS485 multidrop high-speed communications network (Figure 1-2). The maximum line length for the scale network is 1500 feet. Each TNET master can support up to 24 satellite scales.

All access to the **Smart*Touch*®** Master Editor must be performed through a **Smart*Touch*®** Satellite or client on the network. Any **Smart*Touch*®** Model 8360, 8361, 8460, or 8461 satellite on the network can access the **Smart*Touch*®** Master. Access can be limited using three levels of passwords: Master Access, Department Supervisor Access, and Operator Access.

The Model 8361 is designed to be used with the METTLER TOLEDO® Model 8270 scale base, one or two Model 317 remote thermal label printers (one for standard labels, one for DayGlo), and the Model 606, 702, 705, or 706 Autolabelers. Capacity with the Model 8270 remote scale base is 50 x .01 lb, or 20 x .005 kg, or 20 x .005/6 x .005 kg Multi-Range (with Version 3.X or higher software and later Model 8270 multirange capable).

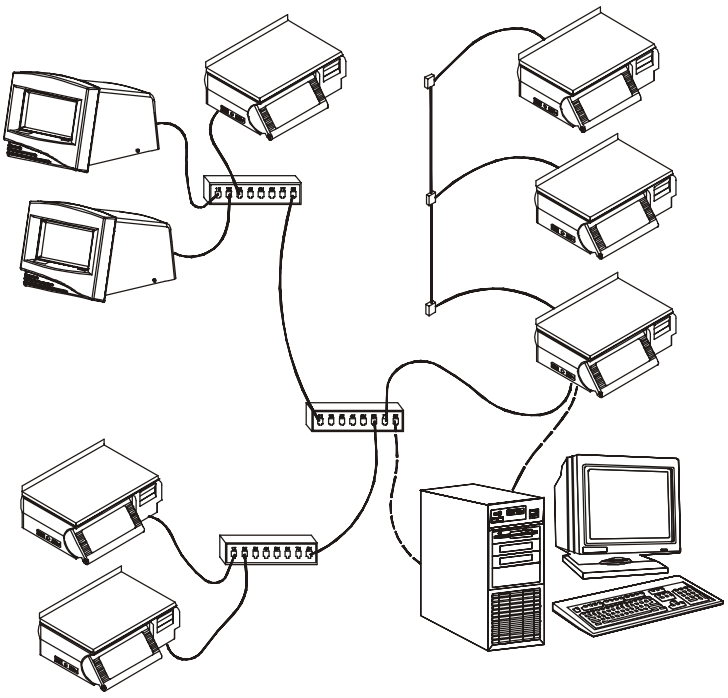


Figure 1-2: Scale Network

Certificate of Conformance - NTEP

Certificate Number 98-087 has been issued for the Model 8361 by the National Institute of Standards and Technology (NIST) stating the Model 8361 complies with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices".

Features

- Available as a TNET Satellite/Ethernet Client and with **Smart*Touch*®** Master.
- Ethernet RF available on clients.
- Touch screen graphical user interface.
- Labels can be printed on up to two remote thermal printers (Model 317).
- Label formats can be linked (factory or user defined) by PLU record.
- Supports Model 702 Bottom Applicator for Security or other labels. Apply commands by PLU record, Price/Unit, Total Package Price, or All.
- Seven (8) factory defined label formats for each of three (3) PLU types for five (5) label sizes (2.1, 2.4, 3.3, 3.7 and 4.2); (80 standard formats total). Thirty (30) customer defined label formats that can be assigned to any label size or PLU type.
- Up to four different graphic images can be assigned to one label for the primary printer: a store logo, a linked graphic, a satellite graphic, and a safehandling panel. The second printer can print: a store logo, a DayGlo linked graphic, a satellite graphic, or a nutrifact panel.
- Standard Style Definitions include:

  0 : Data Only
  1 : Data w/Extra Text
  2 : Data w/ Linked Graphic
  3 : Data w/ Satellite Graphic
  4 : Data w/ Safe Handling
  5 : Data w/ Space for Preprinted Safe Handling
  6 : Data w/ Nutrifact
  7 : Customer Designed (Factory set to Data)

  Data labels designed for labels greater than 2.4″ include extra text. For the smaller size labels (i.e., 2.4″), larger items won't fit (i.e., Nutrifacts).

- Multiple font sizes can be printed on a line-by-line basis or a PLU by PLU basis. A label turn command can be assigned to the PLU record when used in automatically labeling applications.
- Twelve (12) programmable macro keys allow the operator to override a PLU's preprogrammed record price by a fixed price per unit (i.e. .25 per pound off), by a fixed percentage off the unit price (i.e. 10 % off), override a PLU's preprogrammed tare to a new fixed value (i.e. from .05 to .07 lb.), or redirect the particular transaction to a new accumulator.
- Up to 1400 Presets in "Enhanced Preset" mode (Version 3.X software or later), or 350 Presets (10 pages @ 35/page standard mode) can be programmed to call by Group, Item, or PLU. PLU can be called three ways; numeric keypad, presets, or file listing.
- Five PLU specific, user-definable accumulators, each with weight, count, total $, and number of runs.
- Temporary Field Print Inhibit.
- Two tare fields are available and are switch selectable in setup mode.

- Available in three languages; English, French, and Spanish. Currency symbol and decimal point location are selectable in setup mode. (Language change requires reprogramming the software through FLASHPRO.)
- Includes an auto-switchable power supply, and country specific line cord.
- Reports from the master can be printed directly to an optional line printer.
- I/O capability includes:
  * Two label printer ports
  * One line printer port (Master)
  * Wrapper Interface
  * Master Host Port
  * Satellite Host/Aux Port
  * TNET Scale Network Port
  * External PC-AT style QWERTY keyboard Port
  * Scale Base Port (8270)
  * Ethernet Port
- Context sensitive Help screens.
- Cutting test capability.
- Multi level passwords: Operator, Supervisor, and Master levels.
- Voids by run listing (with last 10 runs displayed on listing) or by a particular transaction within a run.

Reliability

The demonstrated MFBF (Mean Time Before Failure) is 30,000 hours. The MTTF (Mean Time To Repair) is less than 30 minutes.

Agency Approvals

The model 8361 is designed to meet the requirements of the following agencies:

UL	Conforms to UL 1950 Safety Requirements.
CUL/CUL	Conforms to CSA/CUL 22.2 #950 Safety Requirements
CSA	CSA Std. C22.2 No. 0 Definitions And General Requirements. CSA Std. C22.2 No 143 Office Machines
NIST	NTEP requirements for Class III weight device NTEP/California Electronic Cash Registers General Code Requirements New Jersey Type Approval
OIML	OIML R76
ANCE	Complies with ANCE testing per NOM specifications.
FCC	Requirements for FCC Conducted Emissions and Radiated

Major Components External

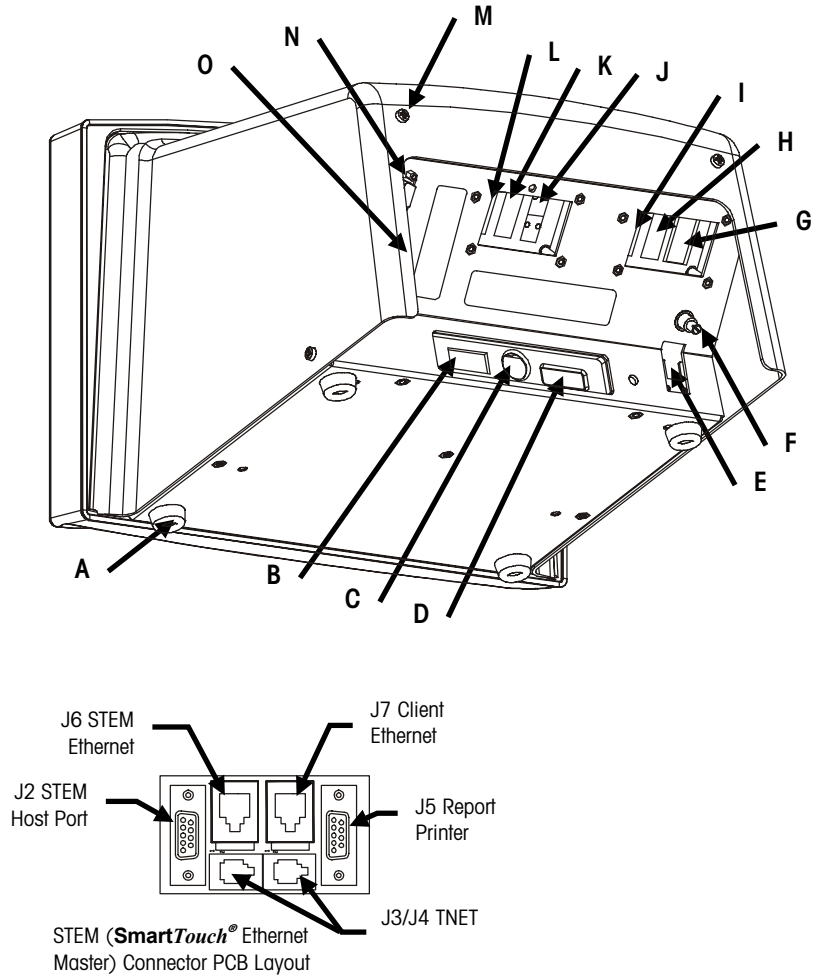


Figure 1-3: External Components

Symbol	Description
A	Stick-On Foot (4)
B	Power Switch
C	Programming Keyboard Jack
D	Satellite Aux/Host Port (DB9-F)
E	Satellite TNET Jack (RJ11)
F	Beeper Volume Control
G	External Scale Port, DB9-F
H	Labeler Interface Port (DB9-F)
I	Label Printer 1 Port (DB9-F)
J	Master TNET Port (RJ11)
K	Master Host Port and/or Client/STEM Ethernet Jacks (if installed)
L	Master Report Line Printer Port 1 (DB9-F) (if installed)
M	Rear Cover Screw (2)
N	Label Printer 2 Port (DB9-F)
O	Power Cord Jack (Not Shown)

Major Components Internal

Internal Components

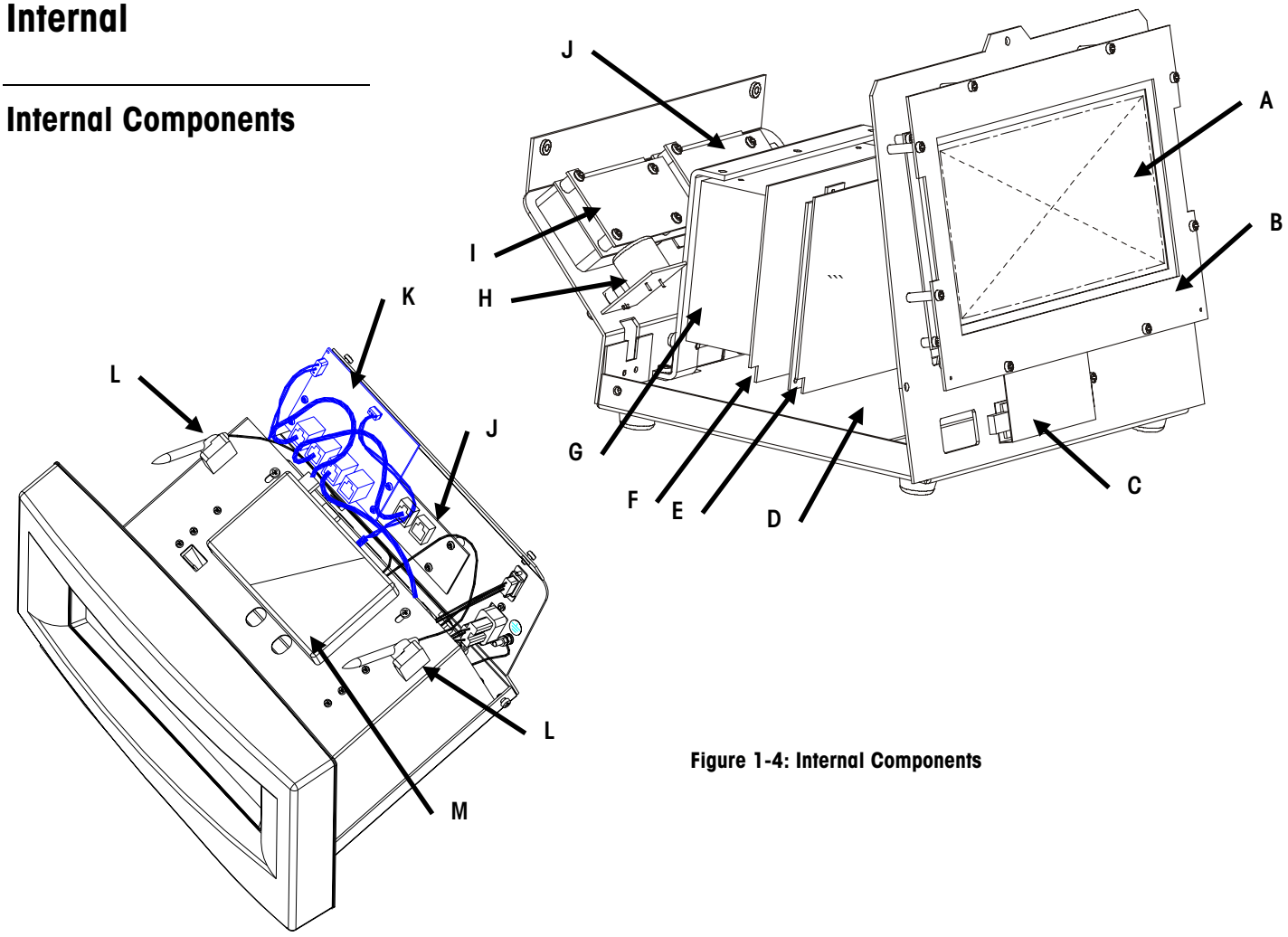


Figure 1-4: Internal Components

Symbol	Description
A	LCD Display (Liquid Crystal Display Panel) with Backlight
B	IR Touchpanel PCB (InfraRed Touchpanel)
C	Inverter PCB (For LCD Backlight)
D	Main PCB
E	Satellite Memory PCB -OR- Master CPU/Memory PCB's
F	Serial PCB -OR- Serial/Ethernet PCB
G	Power Supply +21VDC
H	Beeper PCB
I	Connector PCB
J	Ethernet Client -OR- TNET Master Connector PCB -OR- Ethernet Master Connector PCB.
K	Ethernet RF Hub PCB
L	RF Antenna (Not used on Version 2 RF)
M	Mercury-PC Radio

Main PCB Layout

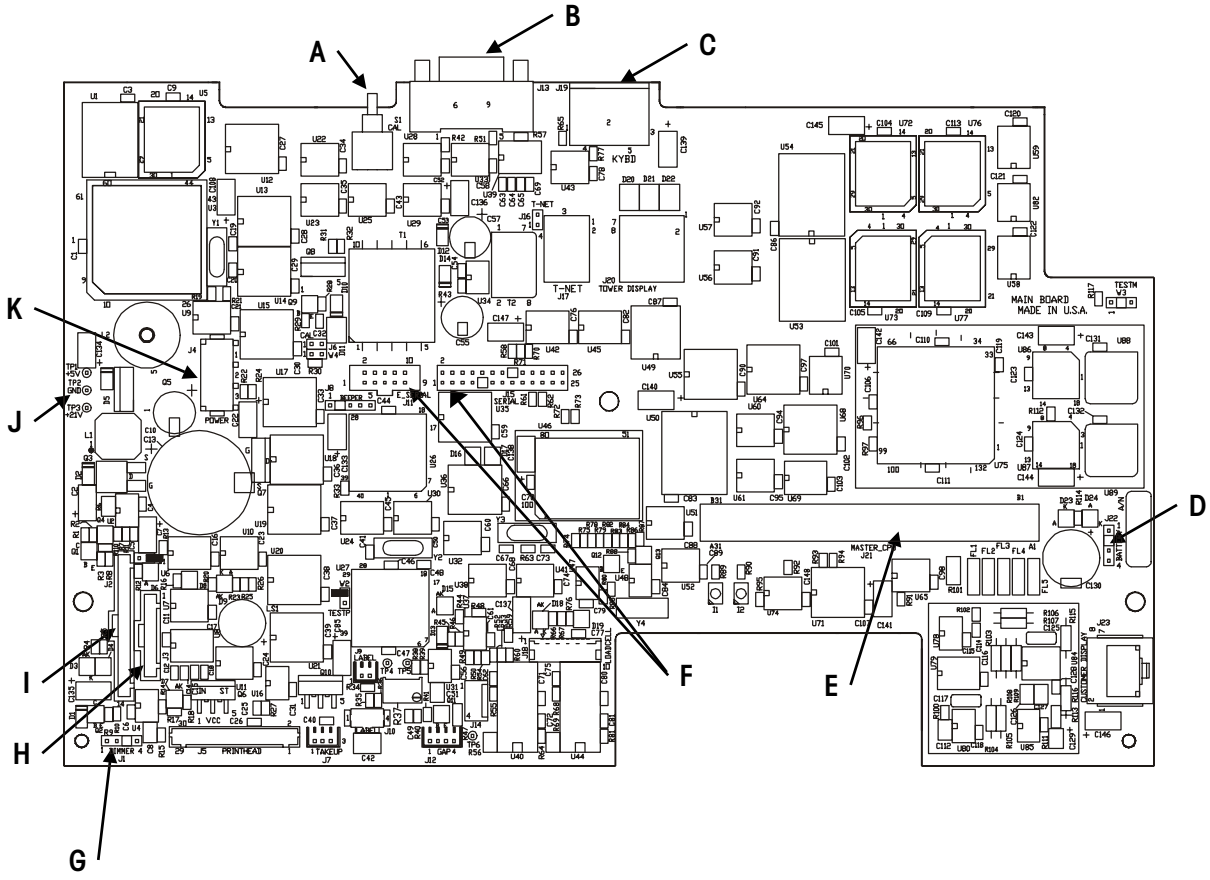


Figure 1-5: Main PCB Layout

Ref	Description	Ref	Description
A	CAL Switch S1	**G**	J1 Backlight Dimmer Connector
B	J13 AUX Connector	**H**	J2 Touchscreen Connector
C	J19 Keyboard Connector	**I**	J3 LCD Display Connector
D	J22 Battery Connector	**J**	Test Points TP1/TP21/TP3 (+5/+12 VDC)
E	J21 Master CPU/Satellite Mem Connector	**K**	J4 +21VDC From Power Supply
F	J11/15 Ethernet/Serial PCB Connectors		

Operator Touchscreen

The operator Touchscreen consists of a 640 X 200 pixel backlit Liquid Crystal Display (LCD), and a 40 X 17 infrared LED transmitter/receiver array that provides keyboard input. When key input is required, the key functions are drawn on the LCD for operator selection. When touching the key area, an invisible infrared beam is blocked creating a key entry. The fingertip must be withdrawn each time to reestablish the beam before another key entry can be made. Help information screens are available by touching the upper left corner of the screen. Figure 1-6 shows the operator "touch-screen" and identifies the areas and keys of the "home" screen.

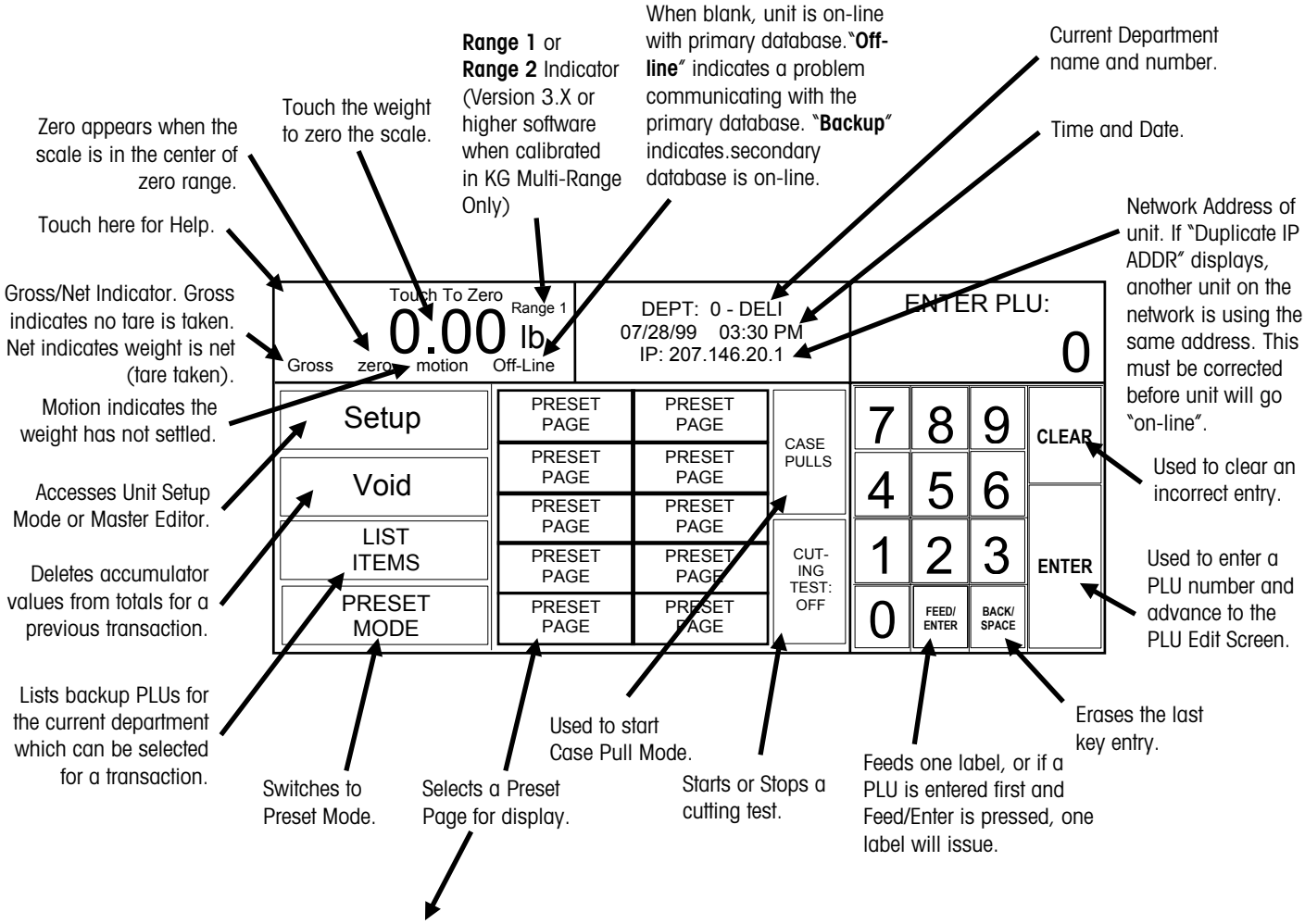


Figure 1-6: Home Screen

Keys 1	Keys 1	Keys 1	Keys 1

These keys will display at the bottom of the screen when "Enhanced Presets" is set to yes under Setup/PLU Options. Enhanced presets will allow up to 1400 preset keys by allowing three extra pages of categories (350 x 4 = 1400).

(With Version 3.0 or higher software only.)

Dimensions

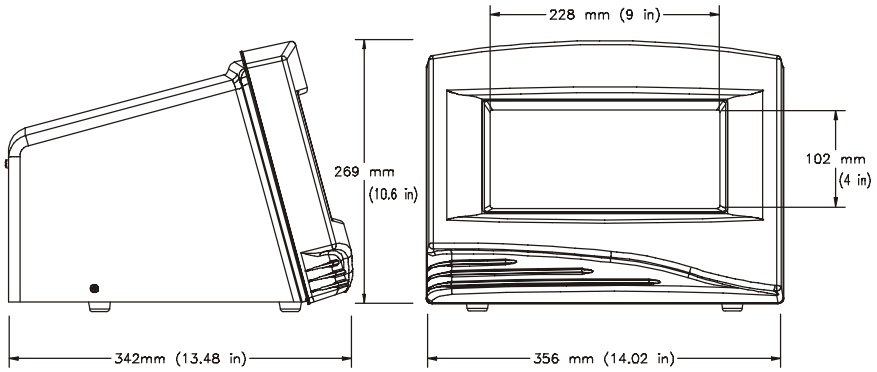


Figure 1-7: Model 8361 Dimensions

Capacity, Overloading, & Zero

When used with the model 8270 scale base, the Model 8361 can be calibrated in 50 x 0.01 lb or 20 x 0.005 kg single-range weighing modes, or 20 kg x .005/6 kg x .002 multi-range mode (with Version 3.0 or later and later multi-range capable Model 8270). The scale is designed to withstand static overloads up to five times the rated capacity without sustaining permanent damage. A weight greater than five increments over capacity causes the weight display to blank and printing is inhibited. If the scale is under zero by more than five increments, the weight field will display dashes (------). When zero cannot be captured, the weight field will display **EEEEEE**.

Tare

Tare is limited to a maximum of 50 lb or 9.995 kg.

Battery Specifications

Master CPU - An on board 4.5 VDC alkaline battery (P/N 14548600A) provides data backup for the Master CPU PCB for up to 2 years with AC power off. This battery is not rechargeable.

Main PCB - A rechargeable NiCad battery maintains memory for up to 2 weeks. When AC power is on, a recharging circuit maintains the batteries at full charge. An optional 4.5 VDC alkaline external battery (P/N 14548600A) is available in the event the onboard batteries fail. The external battery is not rechargeable.

TNET Communications

The TNET network uses an RS485 Synchronous Data Link Communication (SDLC) at 345k baud. A transformer provides isolation with no DC connection between the scales. A four-conductor modular connector telephone cable is used to connect each scale to the scale network. The maximum recommended data cable length is 1500 feet (457 m), including the 25 ft (7.62 m) scale drops. ***Both ends of the main data cable must be terminated using a 113-ohm resistor to provide line voltage balance at all points on the line.*** The **Smart***Touch*® Master PCB is connected to the network using a jumper harness to the I/O PCB that provides a connection for both the Main PCB (Satellite) and the **Smart*Touch*®** Master PCB to the scale network. The **Smart*Touch*®** Master can be located at any point on the network, ***although when the nearing the maximum cable length of 1500 feet (457 m), the master should reside near the middle.***

Ethernet Communications

The STEM and Ethernet Clients communicate using TCP/IP protocol over a standard wired or RF Ethernet network. Refer to Chapter 4 for details.

Ethernet RF

The Mercury-PC supports the following technologies:

Symbol® Spectrum24 802.11 FH

Symbol® Spectrum24

Aironet™/Telxon™ 2.4 TMA

Aironet™/Telxon™ 802.11 DS

Electrical

The Model 8361 requires a dedicated grounded AC power supply. The Model 8361 Power Supply is autoswitching and can handle AC power from 120 VAC to 240 VAC nominal, at 50-60 Hz (± 2%), Single Phase. The AC power tolerance range is -20% to +10% or 96 VAC to 264 VAC. At 120 VAC the Model 8361 draws 0.5 amps. ***The AC line (including ground) must not be shared with noise and surge generating equipment such as, electric motors, compressors, thermostats, fluorescent lights, etc.*** A line-conditioning device is recommended to provide protection from surges and spikes. The Power Supply uses an electronic thermal overload protection circuit designed to protect the internal electrical components. When an overload exists, the power supply output will be significantly lowered until the overload condition is corrected. An internal non-replaceable fuse in the power supply is used for catastrophic failures.

Operating & Storage Temperature

Operating Range: 0°C to 40°C (32°F to 104°F), humidity from 5% to 95% non-condensing.

Storage Range: 0°C to 70°C (32°F to 158°F), with humidity from 5% to 95% non-condensing.

Satellite Interfaces

The following interfaces are available from the Model 8361 satellite.

Connection	Interface	Data	Connector
Scale	RS232	9600,7,E,1	DB9
Indexer	RS422	9600,7,E,1 or 9600,8,N,1	DB9
DataBack	RS232	Configurable	DB9
Label Printer 1	RS232	38400,8,N,1	DB9
Label Printer 2	RS232	38400,8,N,1	DB9
QWERTY Keyboard	PC-AT		5 Pin DIN
Scale Network	TNET	345k bd SDLC	RJ-45
Ethernet Network	TCP/IP		RJ-45

Database Records

The PLU record in the master database file consists of the following fields (shown in alphabetical order):

Action Code Two-digit number from 0 to 50 used to link an Action Message to the PLU record.

Activation Date This field is only available on Pending PLU records and sets the date when the Pending record becomes active.

Activation Hour This field is only available on Pending PLU records. A numeric keyboard is presented for entering the hour for activation (0-23).

Barcode EAN or UPC barcode determined by Setup. For UPC, Select Scale Setting, Gen Merch, Rnd wgt, Drug & Health, Store Mrk, Coupons, Price Encoded, Not Ident. For EAN, first enter the prefix, then select format.

0 GENERAL MERCHANDISE
1 NOT IDENTIFIED
2 RAND. WT. (PRICE ENCODED)
3 NATIONAL DRUG AND HEALTH
4 IN-STORE MARKING
5 COUPONS
6 GENERAL MERCHANDISE
7 GENERAL MERCHANDISE
8 USE SCALE SETTING
9 Type 9 Prefix

Barcode Format When a Type-2 UPC Barcode is selected or if the Barcode is configured as EAN, the format of the symbol must be configured, as follows: (N=Item Number, C=Price Check Digit, $=Total Price, W=Weight Check Digit, X=Barcode Check Digit, #=Weight).

UPC Formats	EAN Formats
0 = NNNNN C$$$$X	0 = NNNNN N$$$$X
1 = NNNNN O$$$$X	1 = NNNNN $$$$$X
2 = NNNNN N$$$$X	2 = NNNN$ $$$$$X
3 = NNNNN $$$$$X	3 = NNNNN C$$$$X
4 = NNNNN W####X	4 = NNNNC $$$$$X
5 = NNNNN O####X	5 = NNNNN #####X
6 = NNNNN N####X	6 = NNNNC #####X
7 = NNNNN #####X	

Blank Selectively blank Pack Date, Net Weight, Unit Price, or Total Price.

Date Forward This field tells the satellite whether to advance the date one day at the selected hour that is programmed in the satellite.

Dayglo Number This is for the linked graphics number for the DayGlo label that may be printed on printer 2.

Description Text used to describe the product. Normally two lines of 32 characters.

Description Line 2 This field defines the size of the second description line. The line can be larger, smaller or the same size as the first description line.

Extra Text A six-digit number between 1 and 999999 used to link an Extra Text Record to the PLU record.

Grade Two-digit number 0-16 linking preprogrammed grade descriptions to the PLU record. 0 means no grade is selected.

Graphics Six digit number 0-999999 linking a graphic to the PLU record.

Group Number Three digit number 0-500 used to separate PLU's within a department for reports. 0 means no group is selected.

Item Number The Item Number is encoded in the UPC or EAN Barcode symbol. Barcode Type-2, six digits maximum (five digits with price check digit enabled), between 0 and 999999. Barcode Type 0, 6,and 7 ten digits (except when using a five-digit manufacturer number which replaces the first five digits of the item number in the barcode.)

Label Style This field presents a numeric keyboard for the entry (0-7) of label style. This number indicates which style of label will be printed for this PLU. This is determined by the defaults setup in the satellite.

NutriFacts A six-digit number 0-999999 used to link a Nutrifact Record to the PLU record.

PLU Number A six digit Price Look Up Number 1-999999 used for database indexing and record call-up.

PLU Type Pricing mode used for the PLU. This will affect which options are presented in the master editor. Select By-Weight, lb/kg-For, By-½, By-¼, By-Count, Standard Pack.

Price Modifier Depending on the PLU type, this field is used for the weight for lb/kg-for pricing, the count for By-Count or Standard Pack pricing.

Security Lab Security Label Field is used with the Model 8361 and the Model 702. When set to YES, the model 702 will apply a label. When set to NO, no label will be applied by the Model 702.

Shelf Life 0 to 999 days, used to calculate Sell-By date printed on the label.

Special Price Depending on the Special Price Type, this field is used to enter the special pricing amount or percentages.

Special Price Type When the Frequent Shopper software is used, this field contains the pricing types. The selections include:

List Price - Mfg. Suggested List Price.

Member Price - Discounted price for By-Weight, By-Count, or Std. Pack PLUs.

Percent Discount - 1-99% off the Total Price for By-Weight, By-Count, or Std. Pack PLUs.

Discount Per Unit - A specific amount off the Unit Price for By-Weight PLUs.

None - Disables Special Pricing.

Tare 1/Oz/Gr Up to 50.00 lb or 9.995 kg when the PLU type is By-Weight. When the PLU type is Standard Pack, this field is used for the ounces or grams for the net weight statement.

Tare 2/Prop Tare 0-50.00 lb or 9.995 kg as By-Weight, 0.0 to 99.9 as proportional tare.

Turn Label Yes or No to turn the label 90°. This is used by the Model 8360 and 8361 to control the label applicator.

Unit/Total Price Six digits 0-999999. By weight pricing range is 0000.00 to 9999.99. By-count pricing range is limited to 99/99.99 or 9/999.99.

Use-By 0 to 999 days, used to calculate Use-By date printed on the label.

Master Memory

The **Smart*Touch*®** Master and STEM is available with 2 MB, 4 MB, or 8 MB (MB = megabyte) battery-backed RAM Memory PCB's. The battery-backed memory is supported when AC power is disconnected from the unit for up to two years (depending on the time the unit is disconnected from AC power). The alkaline battery is not recharged on the PCB. Size requirements can be computed using the following record size specifications.

- Each PLU record uses 223 bytes.
- Extra Text uses up to 3240 bytes (not including 13 bytes overhead). The extra text formula is: ***(Lines x #characters per line)+ 13= #bytes required***. For example: 10 lines x 42 char/line = 420 bytes per record. (60 lines max.)
- Nutrifact records use 393 bytes per record.
- Graphics can be up to 3240 bytes per record.

For example, 1000 PLU records would use 223,000 bytes (223k) of space. 100 ET records with 420 bytes (+13) per ET record, would use (420 + 13 x 100 = 43,300 bytes, or 43.3k). If the total memory capacity is 512k, subtracting 43.3k of ET records from 512k would leave 468k free for the PLU records. The remaining 468k would allow for 2098 PLU records.

Master Host Interface

Two types of hardware interfaces are available on the master host port: RS232 and RS422 Multidrop. The interface is selected by connecting to the appropriate pins on the DB9 connector on the I/O Connector PCB. The RS232 interface is for a single device connected directly to a host computer or modem for full asynchronous communication. The cable length using the RS232 interface is limited to 100 feet (30.5 meters). RS422 must be used when the distance of the cable may exceed 100 feet, or if there will be more than one master or standalone scale connected on the host network. The maximum cable length when using RS422 is 1200 feet (366 meters). The master is multi-tasking and can perform complete host communication in the background while servicing requests from the satellite scales.

Label Specifications

Label formatting is flexible with the Model 8361. Many different types of labels can be used. Table 1-1 shows standard label sizes available from METTLER TOLEDO® and general guidelines for fields on the labels.

DayGlo Labels	Std Labels	Label Width	# Lines of Text
40mm/1.5 in		40mm/1.5 in	N/A
43mm/1.7 in		40mm/1.5 in	N/A
48mm/1.9 in		40mm/1.5 in	N/A
	53mm/2.1 in	64mm/2.63 in	N/A
	61mm/2.4 in	64mm/2.63 in	5
	84mm/3.3 in	64mm/2.63 in	7/10
	94mm/3.7 in	64mm/2.63 in	11/15
	107mm/4.2 in	64mm/2.63 in	15/20
	129mm/5.1 in	64mm/2.63 in	22/30

Table 1-1: Standard Format Label Specs

Factory Numbers for Model 8361

The factory numbers for the model 8361 can be used to determine the options installed in the unit. The factory number can be found on the unit Data Plate. The codes are as follows:

8361 - X X 0 X - X X X

Memory

0 = NONE
3 = 2M MEM
4 = 4M MEM
5 = 8M MEM

Satellite/Master

0 = Satellite
1 = TNET Master (No longer available)
2 = Ethernet Master

RF

0 = No RF
A = Symbol® Spectrum 24® 802.11 FH
E = Symbol® Spectrum 24® Spring
G = Telxon® 802.11 DS
K = Mercury Module only
N = RF Ready/No Mercury Module

Type

2 = Controller (TNET)
B = Controller (Ethernet)

Market

000 USA, English, lb
010 Australia, English, kg
020 Canada, French, kg
087 Spanish, lb
088 Spanish, kg
089 Canada, English, kg

Factory Numbers for Accessories

PART #	DESCRIPTION	FACTORY #
13698700A	Keyboard, Programming	0977-0025
N/A	Remote Scale Base Model 8270-3000 (no Feet or Platter). Remote Scale Base Model 8270-2010 (with Feet and Platter).	8270-3000 8270-2010
14318300A	Master Memory PCB Kit 2 Meg	0977-0017
14318400A	Master Memory PCB Kit 4 Meg	0977-0018
15097000A	Master Memory PCB Kit 8 Meg	0977-0040
14691600A	Cable, Model 8270 to Model 8360/8361/8460/8461 (6 ft/1.8 m)	0900-0305
A12716400A	Cable, **Smart***Touch*® Master To Serial Line Printer (10 ft)	0900-0209
A12717700A	Cable, **Smart*Touch*®** Master to Serial Line Printer (25 ft)	0900-0213
13816200A	Cable, PC DB9 to **Smart*Touch*®** Master 10 ft/3 m	0900-0285
13816300A	Cable, PC DB25 to **Smart*Touch*®** Master 10 ft/3 m	0900-0286
14102600A	Cable, PC DB9 to **Smart*Touch*®** Master 25 ft/7.6 m	0900-0297
14102800A	Cable, PC DB25 to **Smart*Touch*®** Master 25 ft/7.6 m	0900-0298
14102400A	Cable, Modem to **Smart*Touch*®** Master 25 ft/7.6 m	0900-0296
	8361 RF-Ready Upgrade Kit (radio not included)	09770100
	8361 Upgrade Kit with Symbol® 802.11 FH radio	09770102
	8361 Upgrade Kit with Telxon™ 2.4 DS TMA radio	09770104
	8361 Upgrade Kit with Symbol® Spring radio	09770106
	8361 Upgrade Kit with Telxon™ 802.11 DS radio	09770108

Table 1-2: Accessories

Barcode Symbols

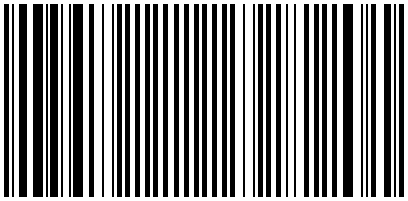
UPC or EAN-13 barcode symbols are available. The following samples are of **UPC Type-2** and **UPC Type-0** barcodes. The barcode must be set up correctly to work with the store's scanner. In addition, the UPC Type-2 and EAN-13 barcodes include an optional price check digit (PCD) that must match the scanner's settings.

128C Barcode Type

A new special barcode type can be selected called 128C. When selected, this barcode uses Symbology type 128A with the following specifications.

Characters 1-2: 81
Characters 3-14: 12 digit UPC
Character 15: Reserved number always 0
Character 16-20: 5-Digit weight in centipounds (assumes two decimal positions)

A 128C symbol example is shown below.



UPC Type-0 Barcode

Figure 1-10 shows an example UPC Type-0 Barcode. The Type-0 barcode is used for general grocery, drug, or other prepackaged items. This type of barcode provides the register with a 10-digit Item Number. The number is then used to retrieve the item's description and price. The symbol contains 12 digits. The first position from the left is always the Barcode Type. Positions 2 through 11 (from left to right) are reserved for data, in this case the 10 digit Item Number. When a Manufacturer Number is used, it will show up at positions 2-6, and the last five digits, positions 7-11, will be the Item Number. Position 12, the last position on the right, is reserved for the Symbol Check Digit.

Note: If the Manufacturer Number is set to any value greater than zero, it will replace the first five MSD (Most Significant Digits) of the Item Number.

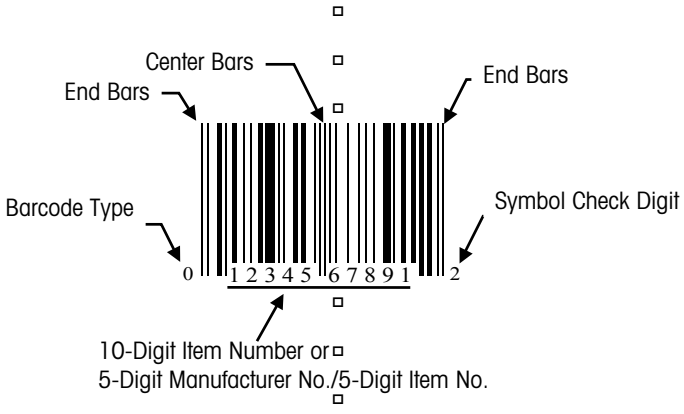


Figure 1-10: Standard UPC Type-0 Barcode

UPC-A Type-2 and EAN-13 Barcodes

The UPC Type-2 barcode and the EAN-13 Flag 20 barcode are used when the total price of the product varies from package-to-package, such as products sold by quantity, weight, etc. The UPC-A Type-2 barcode is actually a subset of the EAN-13 barcode. The EAN-13 Flag 20 barcode differs only from the UPC-A Type-2 barcode by having a 13th digit called Flag 1. The UPC-A symbols use twelve digits and EAN-13 uses thirteen digits. Since no standard total price can be set, the total price is encoded in the barcode symbol, along with the Item Number. When this type of barcode is scanned, the Item Number is used to retrieve the product description. The UPC Type-2 and EAN-13 barcodes will print a 5 or 6-digit Item Number (with no price check digit) and a 4 or 5-digit total price to be encoded in the barcode symbol (Figure 1-11). Refer to the UPC and EAN Barcode Setup section in Chapter 3 for barcode formats.

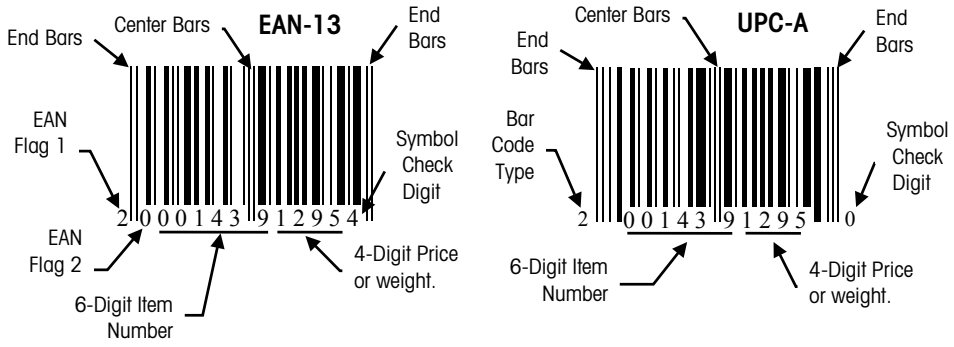


Figure 1-11: Barcode Symbols/No Price Check Digit

A Price Check Digit (PCD) is also available as an option in the UPC Type-2 and the EAN-13 barcode. The PCD is used as a secondary check for the total price. When enabled, the PCD takes the place of the last position in the Item Number, shifts the Item Number one position to the left, and limits the Item Number to five digits. The PCD will print in the first position to the right of the center bars and shifts the Item Number one position to the left (Figure 1-12).

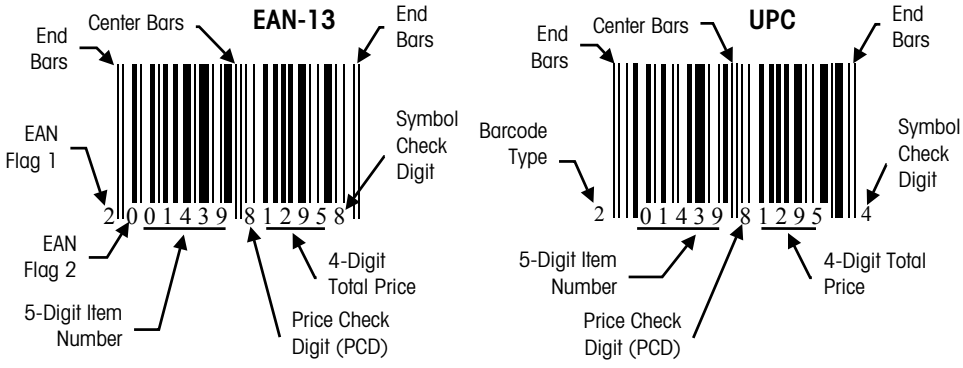
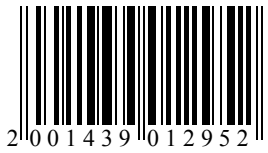


Figure 1-12: Barcode Symbols/Price Check Digit (PCD) Enabled

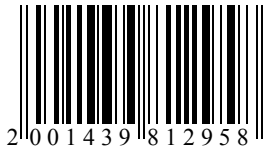
UPC/EAN Barcode Symbol Examples

EAN 20 Flag
4D Item (1439)
6D Price (000759)
Symbol Check Digit (2)

EAN 20 Flag
5D Item (01439)
5D Price (01295)
Symbol Check Digit (2)



EAN 20 Flag
5D Item (01439)
Price Check (8)
4D Price (1295)
BC Check Digit (8)



UPC Type-0
10D Item
(1234567891)
BC Check Digit (2)

UPC Type-2
5D Item (01439)
Price Check (0)
4D Price (1099)
BC Check Digit (2)

UPC Type-2
6D Item (001439)
4D Price (1099)
BC Check Digit (4)

UPC Type-3
10D Item
(1234567890)

UPC Type-4
10D Item
(1234567890)

UPC Type-5
10D Item
(1234567890)

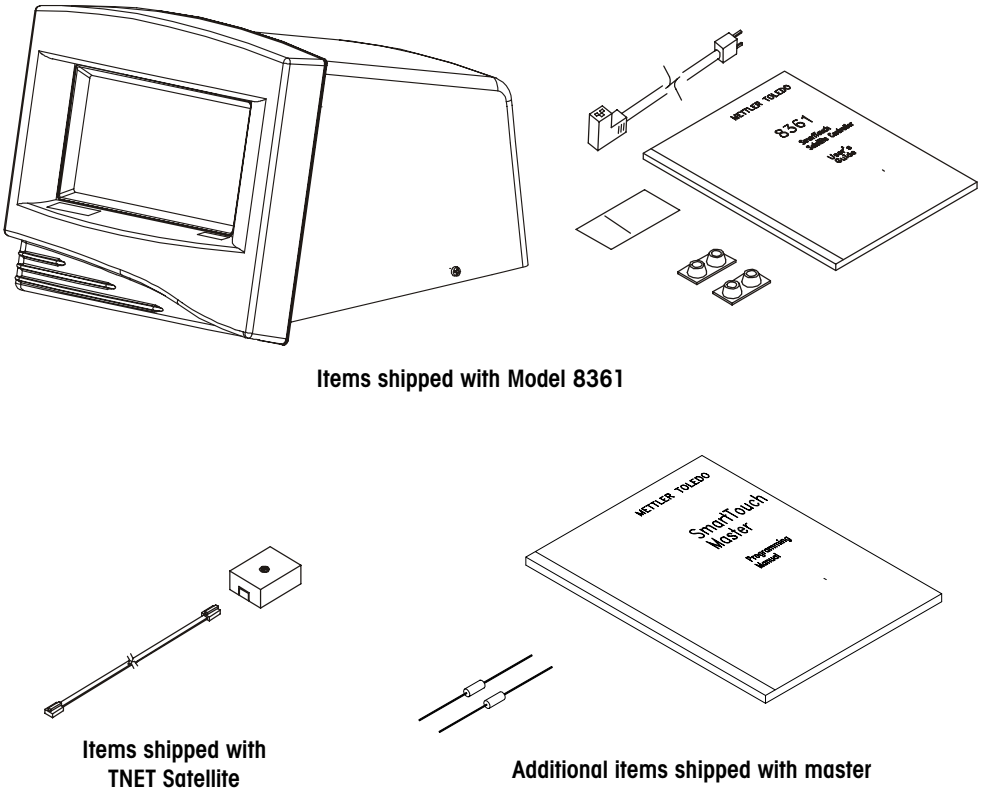
UPC Type-6
10D Item
(1234567890)
Same as Type-0

UPC Type-7
10D Item
(1234567890)
Same as Type-0

2 Installation

Unpacking

Remove the Model 8361 and all accessories from the shipping carton and inspect for visual damage. Report any damage to the carrier promptly. Remove and verify you received a User's Guide, Programming Manual (with **Smart*Touch*®** Master only), two termination resistors (with **Smart*Touch*®** Master only), power cord, 25-foot TNET communication cable (TNET Satellite and TNET Master only), a phone jack, stick-on feet, and capacity label. (See Figure 2-1.)



Items shipped with Model 8361

Items shipped with TNET Satellite

Additional items shipped with master

Figure 2-1: Model 8361 and Accessories

Install the stick-on feet at each corner of the metal base on the bottom of the model 8361 (Figure 2-2). Apply the appropriate capacity labels on the Model from sticker P/N *14881300A. Make sure the Range labels are installed if calibrating in KG MultiRange mode.

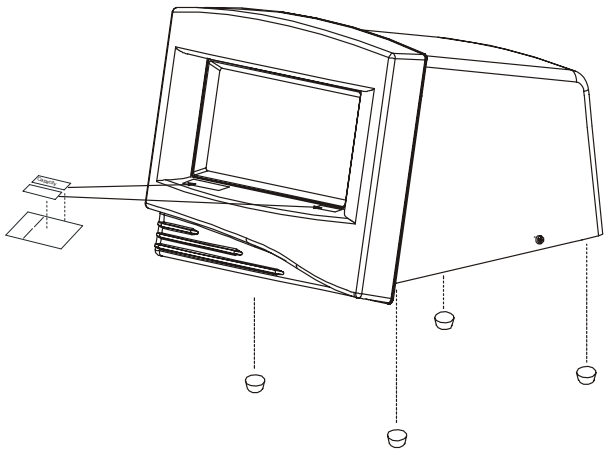
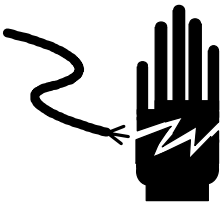


Figure 2-2: Installing Stick-On Feet and Capacity label

Installation

Install any option kits at this time. Refer to the appropriate section for kit installation instructions.

Note: If you choose to dispose of the package, please recycle the materials. The packaging is recyclable natural fiber with biodegradable adhesives.

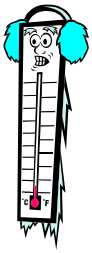


⚠ WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



Note: If the unit has been stored or transported in below freezing temperatures, allow the unit to warm up to room temperature before turning on AC power.

If the Model 8361 will be installed on an Autolabeler, refer to the Installation Instructions shipped with the Autolabeler. *Install the scale base and printer (and other accessories) and connect all harnesses before connecting AC Power.* Install the power cord in the receptacle on the rear of the Model 8361 (Location shown in Figure 1-3). If units have been stored or transported in below freezing temperatures, allow the units to warm up to room temperature before turning on AC power. Connect the power cord to the AC outlet. Set the power switch to the ON position. Allow at least 30 minutes warm-up time before initial calibration. ***NOTE: Satellite units must be connected to a master during setup to initialize the satellite's local memory. The Super Caps on the Master CPU and Master Memory PCB's require up to four hours to charge. Discharge time is approximately 12 hours. Do not remove a programmed Memory PCB from the Master CPU PCB until the Super Caps have charged.***

Connecting to Model 8270

The jumpers in the Model 8270 must be set as shown at the left when used with the Model 8361.

Model 8270 Jumpers
(When used with Models 8360 and 8361)

W1 Short
W2 Short
W3 Open
W4 Open

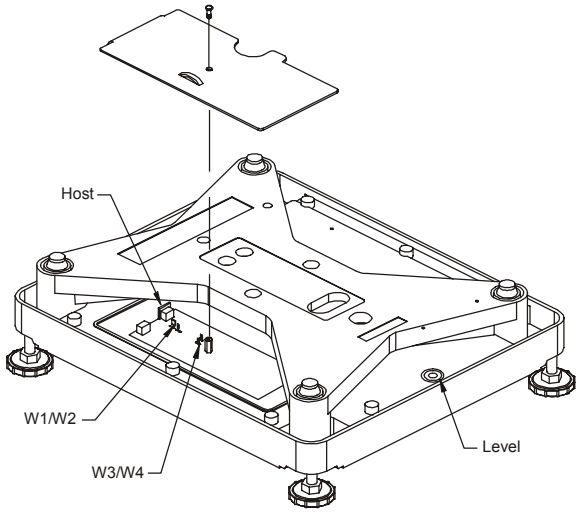


Figure 2-3: Model 8270 Jumper Locations

Scale Interface Cable

Figure 2-4 illustrates the factory cable from the Model 8270 to the Model 355, 8360, 8361, 8450, 8460, and 8461.

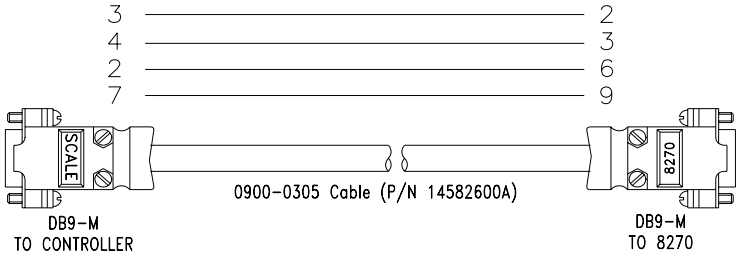


Figure 2-4: Scale Interface Cable

Power Up

On power-up, the contrast adjustment screen will display, as shown in Figure 2-5. To adjust the contrast, touch the bar on the right and move your finger up or down. To bypass this step, touch the **CONTINUE** bar. The contrast can be adjusted at anytime if this step is bypassed by first touching the upper left corner of the display (HELP shown in Figure 1-3), then selecting ***Adjust Contrast*** on the help window.

The Model 8361 goes directly to the home screen and updates after a delay (in minutes) equal to the Unit ID number. At 2:00 A.M., the Model 8361 will request a backup at the time equal to the value of the Unit ID multiplied by 5. (Example: Unit ID 1 multiplied by 5 will request the backup at 2:05.)

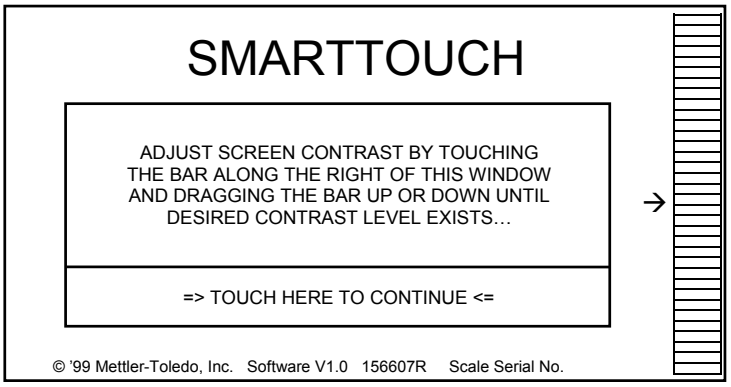
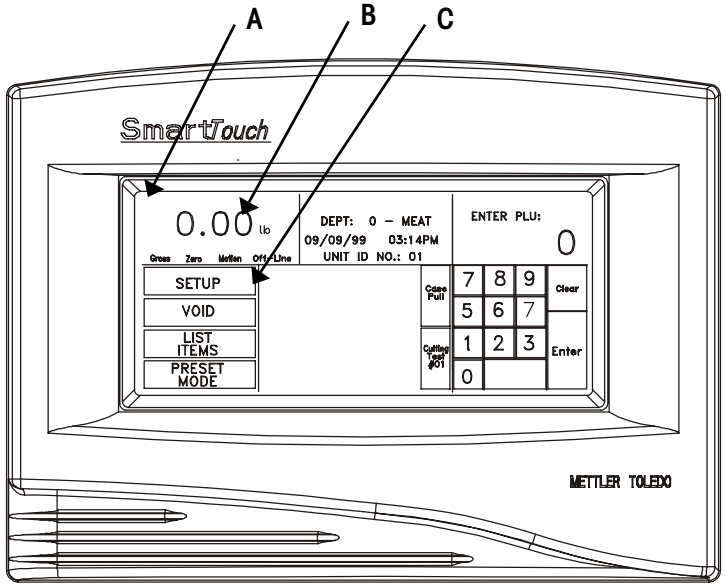


Figure 2-5: Adjust Contrast Screen

The default screen on power-up is numeric entry home screen, as shown in Figure 2-6. Certain "keys" will be drawn on the screen, however, some functions, such as zero, do not show a key area.

If the weight display field shows **EEEEEE**, zero was not captured (on scale/printer units). Make sure the platter is in place and empty. (Note: The zero "key" does not work if zero is not captured at power-up or calibration.) If zero cannot be captured, calibration may be necessary. If dashes (------) are displayed, zero was captured but the scale is behind zero. Make sure the platter is in place and empty, then touch the Weight Display Field (B in Figure 2-6) to manually zero the scale.

For Help Information on the various scale functions or to adjust the display contrast, briefly touch the top left corner of the screen (A in Figure 2-6), to open a help window.



A = Help/Contrast Adjustment
B = Zero Scale
C = Setup Mode Key

Figure 2-6: Model 8361 Keys

W&M Seal

The Model 8361 can be sealed to meet local Weights and Measures requirements by using the sealing screw and bracket, as shown in Figure 2-7.

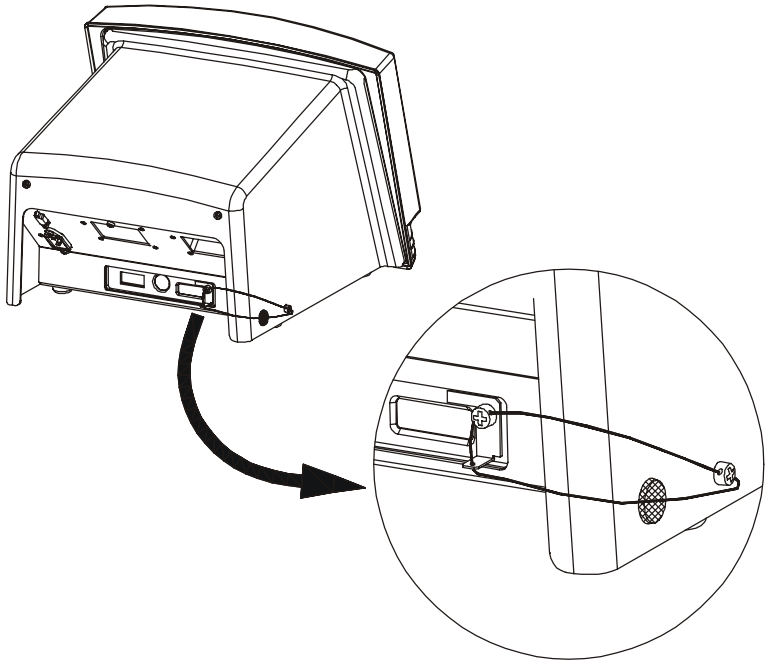


Figure 2-7: Sealing Screw and Bracket Installation

Touchscreen Operation

Do not press on the Touchscreen. Use only a light touch for key entry.

Do not use a hard or sharp object to make key entries. This can scratch or damage the Touchscreen and lens.

The Model 8361 Touchscreen is both a display and keyboard. The keyboard part of the Touchscreen does not use conventional keys, but instead senses where the fingertip is placed on the screen for key input. Only a light touch within the key area (Figure 2-10) is required.

For best results, the fingertip must enter at a right angle (Figure 2-8) to touch the key area, and then must be withdrawn beyond the black lens surrounding the Touchscreen (Figure 2-10) before making the next key entry. When touching the keys, make sure no other finger drags on the screen. This would prevent the Model 8361 from correctly sensing the fingertip.

Your thumb may not produce good results, especially if it is larger than the key (Figure 2-9). Wearing gloves may also not produce the best results if the gloves are larger than the key area. Again, do not press on the keys. Just a light touch is all that is required.

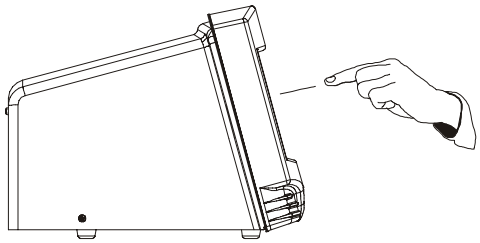


Figure 2-8: For Best Results, Use Fingertip

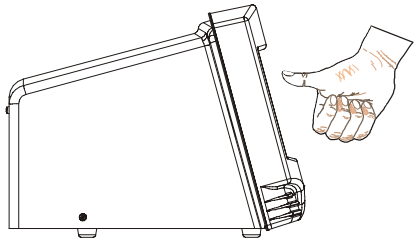


Figure 2-9: Thumb may not work

LED Lens
Withdraw fingertip past the black lens after each key entry.

Fingertip must touch within the key area for best results.

Figure 2-10: LED Lens and Key Area

3 Setup

Unit Setup Screen

Touch the SETUP key to access the Unit Setup Screen.

If no password has been configured, the ENTER PASSWORD screen will be bypassed. The Unit Password has two levels of access: Supervisor or Operator. The supervisor password allows entry into all of the setup functions. The operator password allows access only to functions that the supervisor allows. Grayed key areas indicate disabled functions. Refer to the Program Password section at the end of this chapter.

For clarification, Unit will represent the Satellite/Client. Instructions that will pertain to only one version (TNET or Ethernet) will be pointed out in the manual. The terms "**Smart*Touch*®** Master" or "Master" will represent the **Smart*Touch*®** TNET Master or STEM unless specified otherwise.

During setup, you may be presented with paging keys, as shown below. Use the keys to view all available options.

⎺▲ To Top of List
▲ One Page Up
▼ One Page Down
▼⎽ To Bottom of List

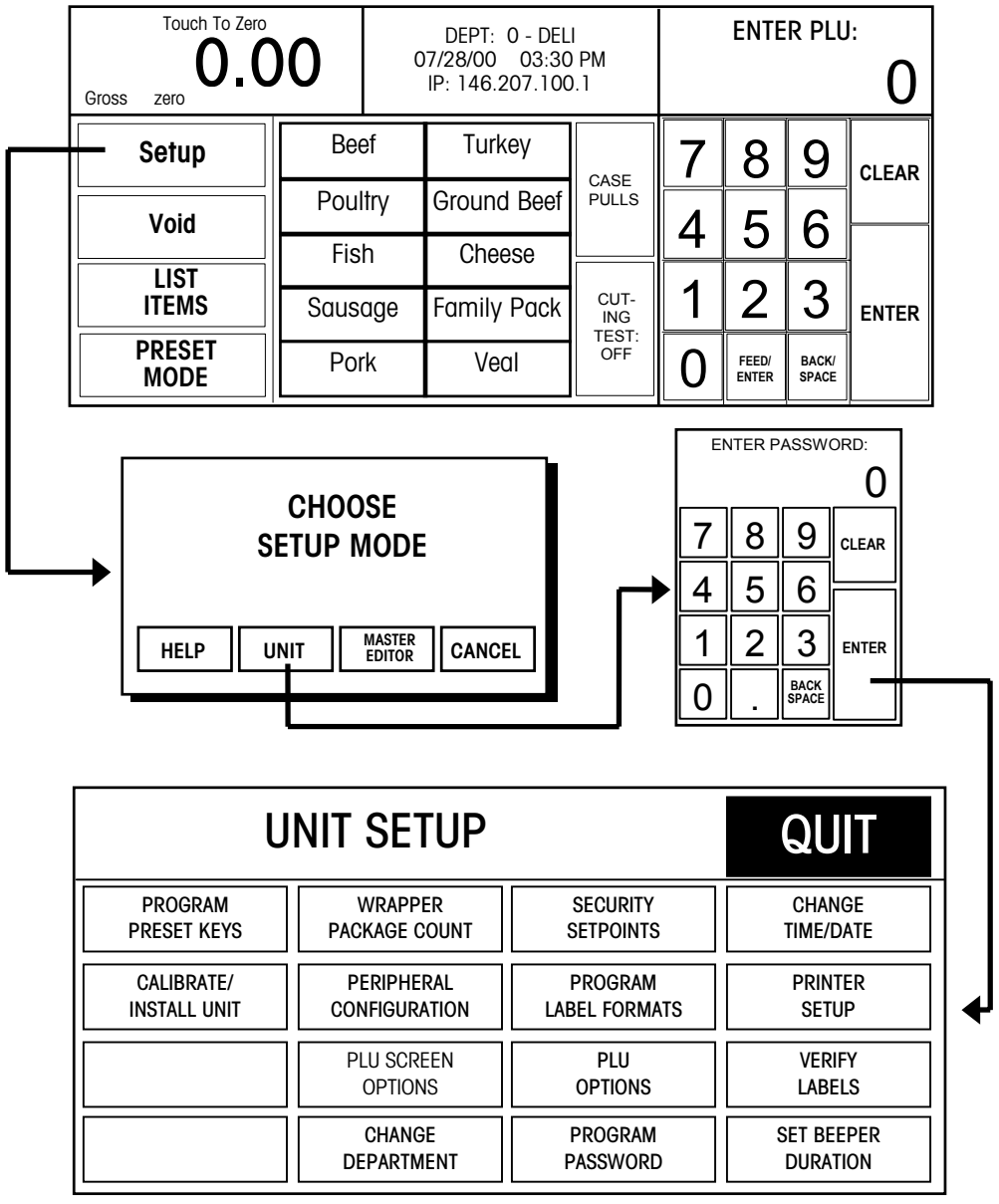


Figure 3-1: Unit Setup

Preset Key Programming

From the Unit Setup screen, touch PROGRAM PRESET KEYS to bring up the PRESET PAGES edit menu. Each of the 10 pages shown can contain up to 35 preset keys.

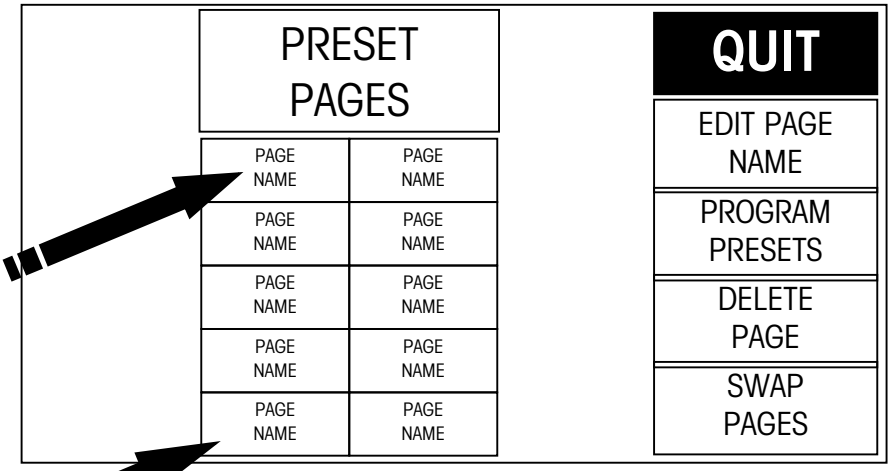


Figure 3-2: Program Presets Screen

Keys 1	Keys 1	Keys 1	Keys 1

These keys will display at the bottom of the screen when "Enhanced Presets" is set to yes under Setup/PLU Options. Enhanced presets will allow up to 1400 preset keys by allowing three extra pages of categories (350 x 4 = 1400).

(With Version 3.0 or higher software only.)

To **delete** an entire Preset Page, touch the DELETE PAGE key, then touch the page you wish to delete. Complete or cancel the deletion as prompted.

To **swap** preset page key positions, touch the SWAP PAGES key, then touch the first key you want to swap followed by the second key you want to swap.

To **edit** the page name, touch EDIT PAGE NAME, then touch the key you wish to edit. Type the name you wish to appear on key. Use the BACKSPACE key to delete existing characters, or SHIFT BACKSPACE to delete a complete line. One line of 7-8 large characters or two lines of 10 characters can be displayed. To move to the second line, touch NEW LINE.

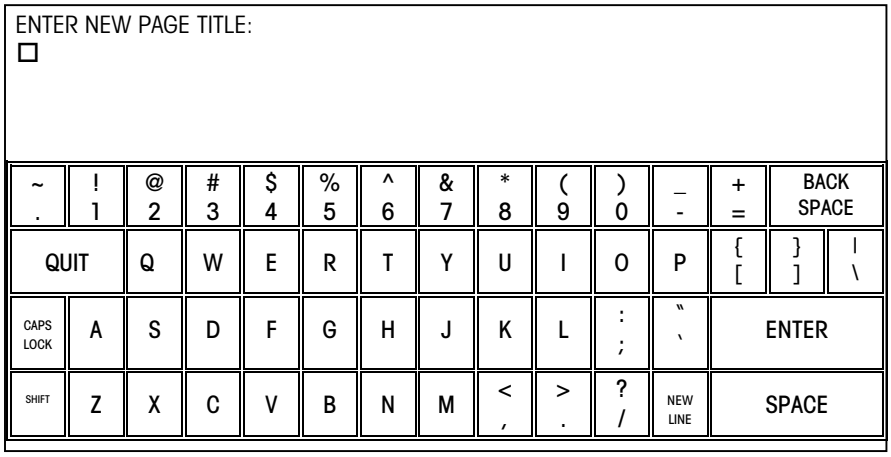


Figure 3-3: Alphanumeric Keyboard Screen

To program PLUs into a page, touch PROGRAM PRESETS, then touch one of the ten preset category keys (Figure 3-4). The Preset Menu shown in Figure 3-6 will then appear.

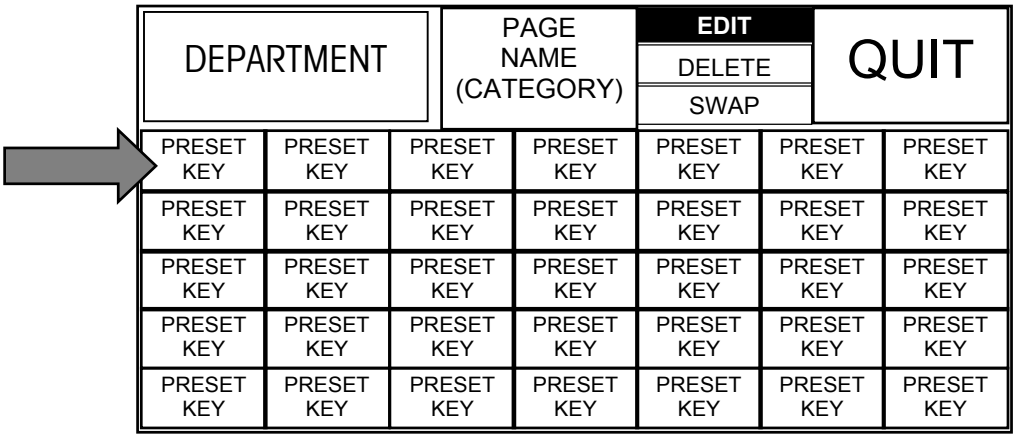


Figure 3-4: Program Presets Menu

To change the department that you are selecting PLUs from, touch the DEPARTMENT key (upper left corner). A list of the departments with descriptions will display. Page through the list to find the desired department and touch to select it.

To delete an existing preset key, touch DELETE (at the top of the screen) followed by the preset key you wish to delete. Complete or cancel the deletion as prompted.

To swap the key locations of two preset keys on the preset page, touch SWAP (at the top of the screen), then touch the first key you want to swap followed by the second key you want to swap.

To add a new preset key or edit an existing preset key, touch EDIT followed by the preset key you wish to program. The numeric keyboard will display. Type in the PLU number or touch LOOK-UP to generate a list of PLU numbers from the current department. Page through the list of PLUs to locate the item and touch to select it.

The alphanumeric keyboard (below) will display, and the preset key description for the item will show in the upper left-hand corner of the display. The second line of text in the left-hand corner is the description editor. On new preset keys, the preset key description will default to the PLU description.

Use the keyboard to edit the preset key description. The BACKSPACE key erases one character at a time, and SHIFT BACKSPACE erases the complete line. Up to three lines of 12 characters per line are allowed. Touch the ENTER key when you are finished.

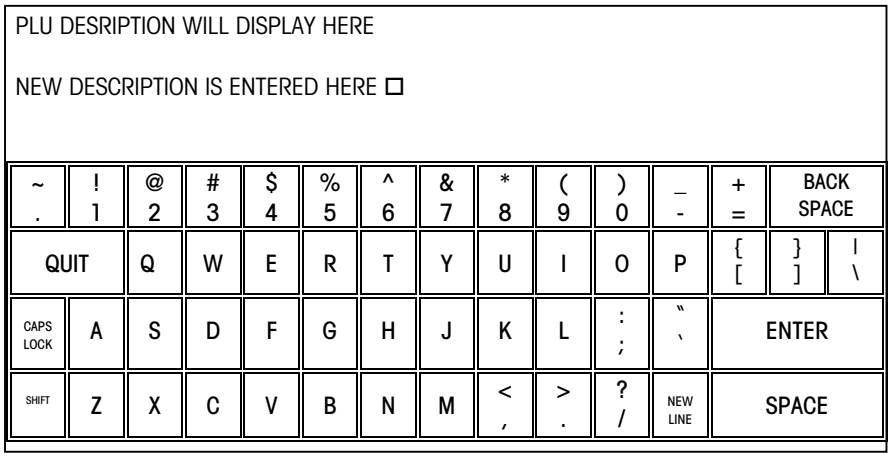
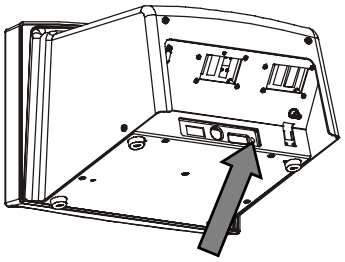


Figure 3-5: Alphanumeric Keyboard for Preset Keys

Calibrate/Install Unit



Cal Switch Access Hole

The Unit Setup Screen is shown below.

UNIT SETUP			QUIT
PROGRAM PRESET KEYS	WRAPPER PACKAGE COUNT	SECURITY SETPOINTS	CHANGE TIME/DATE
CALIBRATE/ INSTALL UNIT	PERIPHERAL CONFIGURATION	PROGRAM LABEL FORMATS	PRINTER SETUP
	PLU SCREEN OPTIONS	PLU OPTIONS	VERIFY LABELS
	CHANGE DEPARTMENT	PROGRAM PASSWORD	SET BEEPER DURATION

Figure 3-6: Setup Screen

Touch the CALIBRATE/INSTALL UNIT key, then touch the **CAL** switch to continue. The following sections explain the System Configuration Menu.

Unit ID

Unit ID-TNET Satellite

The first selection on the System Configuration Menu of the TNET Satellite is UNIT ID. The Unit ID number identifies the satellite in the TNET network. Every TNET satellite on the network must have a unique ID number between 1 and 30. (If the scale is off-line, or is not responding to commands, verify that the Unit ID is not duplicated and is within 1-30.) Key in the number and touch ENTER.

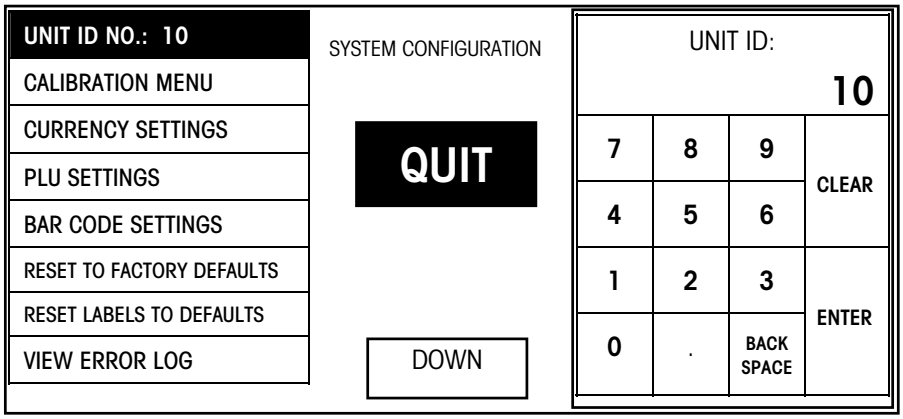


Figure 3-7: Unit ID Screen, TNET Satellite

Unit ID-Ethernet Client, Software Version 2.0

The Unit ID Number is a unique IP number (Internet Protocol) that identifies the satellite on the Ethernet network. After entering the Unit ID number, you must enter the Server IP number, Router (Gateway), and Subnet Mask (below).

If the network is local, arbitrary numbers can be selected for the IP Address. An IP Address consists of a group of four numbers from 0 to 255, separated by periods, for example: 207.142.140.101. Do not duplicate numbers on the network. To enter the numbers, key in the numbers starting at the MSD (left Most Significant Digit) number. The periods are not entered in this procedure. Enter numbers lower than 100 with preceding zeros (Example: 10 is entered as 010). To exit without saving, touch CLEAR.

Power the unit down after changing the IP address for the new changes to take effect.

To find the Windows NT Server IP address, refer to Chapter 4.

Refer to Chapter 4 for additional information on IP address numbers and Ethernet or the **METTLER TOLEDO®** Connectivity Guide.

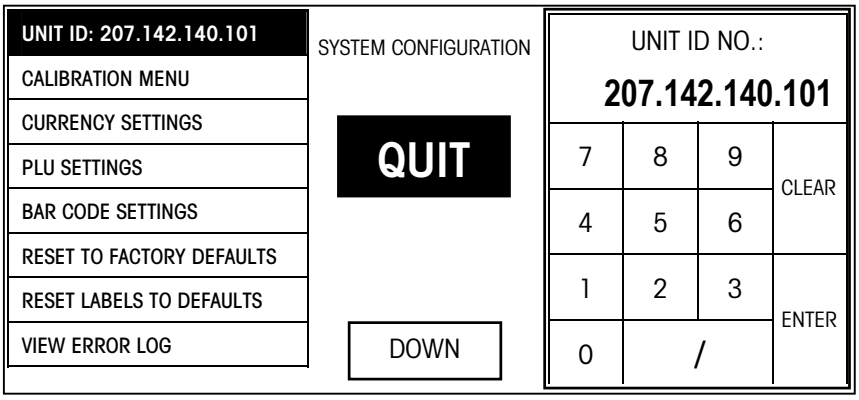
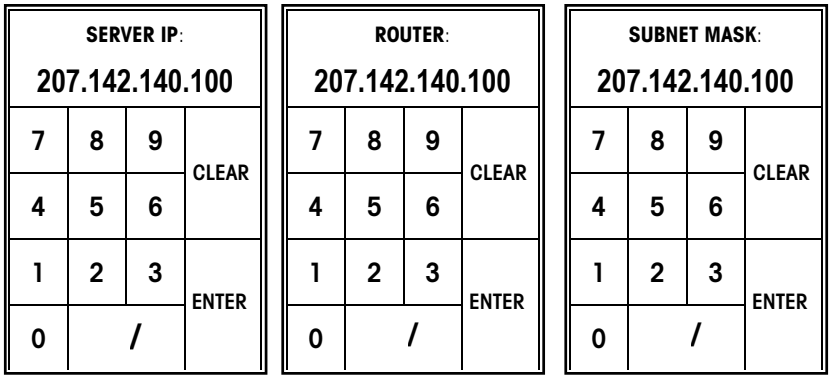


Figure 3-8: System Configuration Menu, Ethernet Client
Unit ID Number, Client



Server IP, Router (Gateway), and Subnet Mask Numbers, Ethernet Client

UNIT ID	This is the scale IP address. The IP address is entered one octet at a time. The default value for this field is 255.255.255.000.
SERVER IP	This is the STEM or PC Scale Server current IP address. The default value is 255.255.255.000.
ROUTER	The router's (default gateway) IP address. The router is used when accessing devices outside of the local network. The IP address is entered one octet at a time. The default value is 255.255.255.000.
SUBNET MASK	The mask that is used to identify the local network when accessing IP address on the Ethernet network. The mask is entered one octet at a time. The default value is 255.255.255.000.

Network Setup-Ethernet Client, Software Version 3.0 and later

The network configuration must be selected for the Client under the NEWORK SETUP function. To enter setup mode, touch SETUP, UNIT, CALIBRATE/INSTALL UNIT, then press the CAL switch. (Software Revision 3.0 and later Software added DHCP).

If the client/server network is local, arbitrary numbers can be selected for the IP Address. An IP Address consists of a group of four numbers from 0 to 255, separated by periods, for example: 207.142.140.101. Do not duplicate numbers on the network. To enter the numbers in the Model 8361/8461, key in the numbers starting at the MSD (left Most Significant Digit) number. The periods are not entered in this procedure. Enter numbers lower than 100 with preceding zeros (Example: 10 is entered as 010). To exit without saving, touch CLEAR.

Power the unit down after changing the IP address for the new changes to take effect.

To find the Windows NT Server IP address, refer to Chapter 4.

Refer to Chapter 4 for additional information on IP address numbers and Ethernet or the **METTLER TOLEDO®** Connectivity Guide.

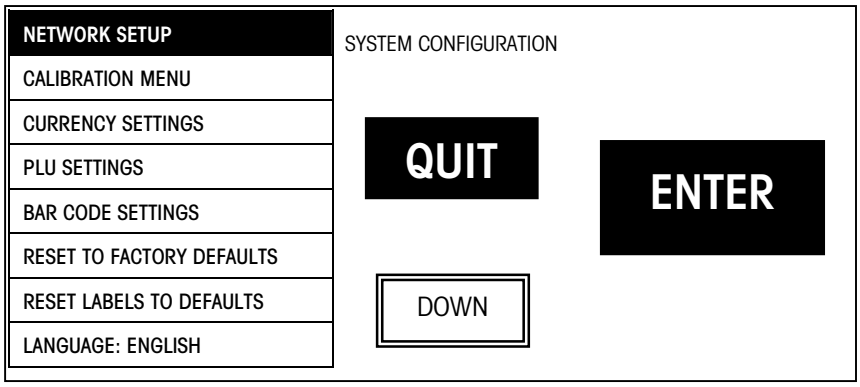


Figure 3-9: System Configuration Menu, Ethernet Client

Touch NETWORK SETUP, then touch ENTER.

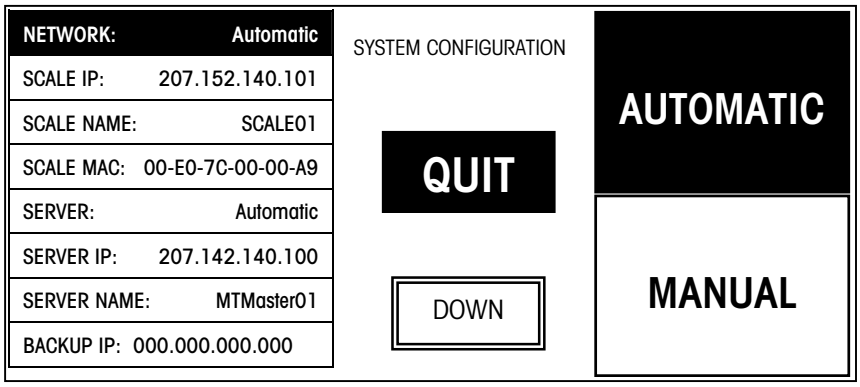


Figure 3-10: Network Setup Menu Screen One

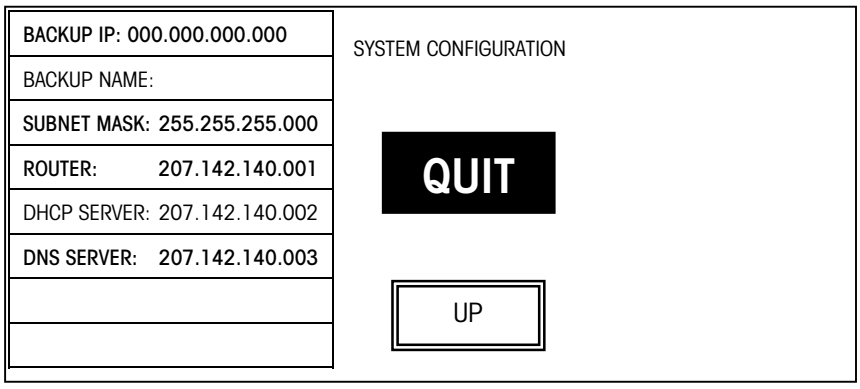


Figure 3-11: Network Setup Menu Screen Two

The network configuration parameters are described in the following section.

You must first select the network boot type, **Manual** or **Automatic**. Automatic is the default. Automatic will use DHCP to automatically obtain the network boot information from a DHCP server. The parameter details are explained below.

Network	When **Automatic** is selected, the DHCP feature will be used. The "SERVER IP", "SERVER MAC", "SUBNET MASK", "ROUTER", "DHCP SERVER", and "DNS SERVER" fields will display but cannot be changed. Changes are allowed in the "Scale Name" and "Server Name" fields. If **Manual** is selected, then the DHCP feature is disabled and the TCP/IP parameters must be entered manually. The "Server MAC" field will display but no changes are allowed. The "DHCP Server" and "DNS Server" fields will not display and changes are not allowed to these fields. Changes are allowed in the "SCALE IP", "SCALE NAME", "SERVER IP", "SERVER NAME", "SUBNET MASK", and "ROUTER" fields.
SCALE IP	This is the current scale IP address. If the "Network" is set to "Automatic" this field cannot be changed. If the "Network" is set to "Manual" then this field may be changed. The IP address is entered one octet at a time. The default value for this field is 255.255.255.000. When exiting from Network Setup, the IP is checked on the network for duplicates and an alarm is displayed if a duplicate IP is found. In this case, one of the unit's IP addresses must be changed so it is a unique number on the network.
SCALE NAME	This is the local domain name to given to the Client scale. All other devices on the network will reference the scale by using this name when the "NETWORK" is set to "AUTOMATIC". The default value for this field is "Scale01".
SERVER IP	This is the STEM or PC Scale Server current IP address. If the "NETWORK" is set to "AUTOMATIC" then this field cannot be changed. If the "NETWORK" is set to "MANUAL" then this field may be changed. The IP address will be entered as currently done, which is four octets, each separated by a decimal. The default value is 255.255.255.000.
SERVER NAME	This is the local domain name of the scale server, which may be a STEM or PC. The scale will use this name when the "NETWORK" is set to "AUTOMATIC". The default value is "MTMaster01".
BACKUP IP	If the database located at SERVER IP is un-available, the client will attempt to locate the record at the Backup IP location. The IP address is entered one octet at a time.
BACKUP NAME	This is the name of the location entered as the Backup IP.
SUBNET MASK	The mask that is used to identify the local network when accessing IP address on the Ethernet network. If the "Network" is set to "Automatic" this field cannot be changed. If the "Network" is set to "Manual" thee field may be changed. The mask is entered one octet at a time. The default value is 255.255.255.000.
ROUTER	The router's (default gateway) IP address. The router is used when accessing devices outside of the local network. If the "Network" is set to "Automatic" this field cannot be changed. If the "Network" is set to "Manual" this field may be changed. The IP address is entered one octet at a time. The default value is 255.255.255.000.
DHCP Server	This is the current IP address of the local network's DHCP server. This field only displays when the "Network" is set to "Automatic" and cannot be changed.
DNS Server	This is the current IP address of the local network's DNS server. This field only displays when the "Network" is set to "Automatic" and cannot be changed.

Calibration Menu

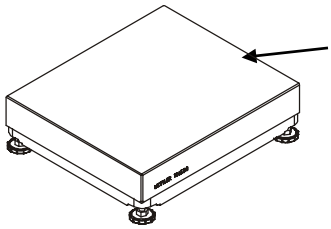
From the System Configuration Menu, touch CALIBRATION MENU then ENTER. From this menu you can select various weighing parameters and/or calibrate the scale. Explanations and default values for standard unit configuration are as follows:

LOAD CELL: NONE
Select **8270** for single-range calibration for a Model 8270 Scale base, **8270 MultiRange** (Version 3.X or later software), or **NONE** for no scale.

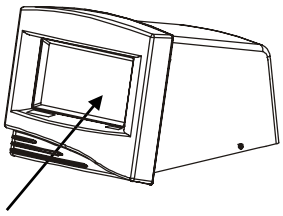
WEIGHING UNITS: lb
Select the weight unit and build. **lb** = pounds. **kg** = kilograms, **kg multiranging**. Depending on the build selected, the screen will show the capacity and increment sizes and cannot be changed.

MINIMUM PRINT INC: 20 div
Sets the minimum weight below which a label will not be printed.

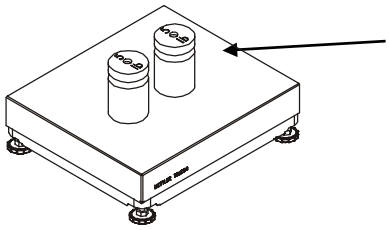
CALIBRATE
Calibration of the scale. This operation should be performed only if calibrated test weights are available. New scales must be calibrated on site. Calibration should be performed if the load cell or Mother PCB is replaced, if the scale won't zero, or if the scale is not weighing accurately. Follow the instructions below.



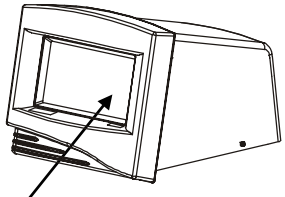
1. Empty the platter before continuing. Touch CALIBRATE, then touch ENTER to start calibration.



2. With the platter empty, touch CONTINUE to calibrate zero. The unit will count down from 15 to 0 while zero is set. Do not disturb the unit while it is setting zero.



3. When zero has been set, add test weight to the platter. The minimum recommended weight is 20 lb/10 kg.



4. Enter the value of the test weight, then touch ENTER. The unit will count down from 15 to 0 while span is calibrated. When span is set, the display will return to the Calibration Menu.

Currency Settings

Touch CURRENCY SETTINGS, then EDIT. Following are the options and the typical values for standard currency-unit configuration:

CURRENCY INC: 0.010
Select the currency increment and decimal point position for all price fields.

CURRENCY SYMBOL: $
The currency symbol (up to 3 characters) to be edited for all price fields using any alpha or numeric character on the keyboard.

PLU Settings

Touch PLU SETTINGS, then EDIT. From this menu you can select various PLU related parameters for the scale. Following are the selections and the typical settings for standard unit configuration:

TCP - Transmission Control Protocol
IP - Internet Protocol

PROTOCOL	**SmartTouch** For use with a **Smart*Touch***® Master. (default) **4 Digit PLU** For use with a Model 8305/8422/8423 4-Digit PLU Master. **6 Digit PLU** For use with a Model 8305/8422/8423 6-Digit PLU Master **TCP/IP** For use with a scale server on an Ethernet Network (Client Software Only).
CALL BY ITEM: NO	No = Call by PLU (default). Yes = Call by Item Number.
TARE FIELD TO USE: TARE1	Select Tare1 (default) or the Tare2 (Refer to Chapter 1, "PLU Record Fields"). Only Tare1 with 8422 master.
Store Logo	This selection is used to select a store logo graphic from the master database and download it to the unit.
VOID AVAILABLE: YES	YES = Enable (default) and No = Disable the void transaction function and key. Void is used to subtract a transaction from the totals accumulator.
MANUAL MODE KEYS	Yes = Enable or No = Disable pricing mode keys (**POUNDS FOR**, **BY QTR**, **BY HALF**) available for manual (off-line) operation. Select only those mode keys that are required and legal for your application. Touch the corresponding box to toggle YES/NO. Yes is default.
PREPACK MODE KEYS	Configure printing conditions. Touch the option box to toggle YES/NO. **PRINT AFTER MOTION -** After placing an item on the platter a label is automatically printed, (weight must exceed minimum print increment value). Normally set YES for Prepack (default). **PRINT KEY ALWAYS ACTIVE -** When set to "YES" the print key remains active and allows multiple labels to be printed when a PLU is called. When set to "NO" printing is only allowed once (unless with weight applied, a new motion, no motion condition occurs). Normally set YES for Prepack (default).
NAME ACCUMULATORS	Edit the names of 5 accumulators selectable through the **ACCUMULATOR** key on the PLU screen. These should match the names in the master database. Defaults are: Auto, Manual, Rewrap, Combination, and Inventory. ("Inventory" is not available in Model 8422/23/8305 Masters).
DEFINE ACCUMULATORS	Defines order and availability of accumulators for Auto Price and Manual Price items. Up to 5 accumulator types are available. To configure, touch the appropriate box to toggle through the accumulator options until the desired one is found, and continue until the desired number and order of accumulators has been set. Repeat this for Manual Price.

CLEAR TARE WITH WEIGHT: YES	When set to YES, the tare can be cleared with weight on the scale. When set to NO, the weight must be removed before the tare can be cleared. Check local requirements for this selection. Default is YES.
AUSTRALIAN FEATURES	Default is **NO** for standard tare operation. **YES** selects the following (required for units sold in Australia): • Disables preprogrammed tare. • By-Count PLUs are not allowed. • Fractional or "kg For" pricing is not allowed. • Enables increasing tare requirement. (The next platter tare taken must be higher that the value on the display.)
SP. PRICE SETTINGS	(Appears with Frequent Shopper software only). This selection defines the rules for rounding weight calculations, unit price, count, and discounts. These settings must match the store POS (Point Of Sale) setup. **BW: Total Price** Select Rounding Method 0-4 below. **BW: Calc Weight** Select Rounding Method 0-4 below. **BW: Per Unit Mtd.** By-Weight Per Unit Method. Valid entries are **0: USAVE FIRST** and **1: MEM. FIRST**. When selecting "0", the dollars/cents saved value is calculated first, then the member total price is calculated. When selecting "1", the member total price is calculated first, then the dollars/cents saved value is calculated. The calculations apply only for the $/cents off the unit price for a By-Weight PLU. **Percent Disc.** Select Rounding Method 0-4 below. **BC: Total Price** Select Rounding Method 0-4 below. **Rounding Methods 0-4** 0: FIVE UP (2.5350 ROUNDS TO 2.54) 1: FIVE DOWN (2.5350 ROUNDS TO 2.53) 2: IEEE ROUNDING (EVEN) (2.5350 ROUNDS TO 2.54, and 2.5450 ROUNDS TO 2.54) 3: TRUNC DOWN (2.5374 ROUNDS TO 2.53) 4: TRUNC UP (2.5315 ROUNDS TO 2.54)
ENHANCED PRESETS	When set to YES, four categories of presets can be created, each with 350 presets allowing up to 1400 preset keys (with Version 3.0 software or later). When set to NO, only one page of 10 categories are available, allowing up to 350 preset keys.
DISABLE LB or KG FOR	YES disables LB FOR (pounds for) or KG FOR (kilograms for) pricing modes. NO allows these pricing modes.
DISABLE LB FRAC PRICING	YES disables fractional pricing modes (pricing by 1/4 or 1/2 pound). NO allows fractional pricing.

Bar Code Settings

Touch BAR CODE SETTINGS, and then ENTER to configure the Bar Code settings. The unit can be configured to print either UPC-A or EAN-13 bar code symbols. The Bar Code Settings selections are determined by the last item on the menu (Bar Code Type), which selects **UPC, EAN**, or **128C** bar code symbols. Only valid settings will display per bar code type. See the end of Chapter 1 for specifications of the 128C Barcode. In the Type 128C, the UPC part of the bar code symbol is identical to the standard UPC setup.

UPC or 128C Bar Code Setup

By-Weight Bar Code

Select the By-Weight bar code type. The default is 2. The selections are as follows:

0 Type 0 Prefix (No price is encoded)
1 Type 1 Prefix.
2 Random-Weight. Item number with total price encoded.
3 Type 3 Prefix.
4 Type 4 Prefix.
5 Type 5 Prefix.
6 Type 6 Prefix. (No price is encoded)
7 Type 7 Prefix. (No price is encoded)
8 Type 8 Prefix (No price is encoded)
9 Type 6 Prefix (No price is encoded)

By-Count Bar Code

Refer to By-Weight Bar Codes. (Default = 2).

Std. Pack Bar Code

Refer to By-Weight Bar Codes. (Default = 2).

Run Total Bar Code

Refer to By-Weight Bar Codes. (Default = 2).

Random Weight Type

Select the format of the bar code when a Type-2 bar code is selected. Refer to the code explanations on the left.

Bar Code Format Codes:
N Item number Digits.
C Check Digit.
0 The number zero.
$ Total Price Digits.
# Weight Digits.
X Symbol Check Digit.
D Digit.

0	NNNNN C$$$$ X	(5-D Item/C/4-D Price)
1	NNNNN 0$$$$ X	(5-D Item/0/4-D Price)
2	NNNNN N$$$$ X	(6-D Item/4-D Price)
3	NNNNN $$$$$ X	(5-D Item/5-D Price)
4	NNNNN C#### X	(5-D Item/C/4-D Wgt)
5	NNNNN 0#### X	(5-D Item/0/4-D Wgt)
6	NNNNN N#### X	(6-D Item/4-D Wgt)
7	NNNNN ##### X	(5-D Item/5-D Wgt)

Run Tot/Mem Type

Sets the format of the bar code when Type-2 is selected for Run Totals or Receipt labels. Refer to By-Weight Bar Code for available selections.

Manufacturer Num

This selection allows for a default five-digit manufacturer number, when used with type 0, 1, 3, 5, 6, or 7 bar codes, replacing the first five MSD digits of the item number.

Hard 0 => PC
6 Digit Item => PC

When a PLU contains a command to turn off the price check digit, (Ex: Action Code 49), this selection determines what will print in the price check digit space. A hard zero or a six-digit item number can be selected.

Barcode Type

Select UPC Barcode (Std. U.S.), EAN for EAN-13 Barcode, or 128C Barcode applications. UPC and 128C will have the same setup configurations.

EAN Bar Code Setup

EAN Bar Code Setup displays only when EAN Bar Code type is selected.

By-Weight Bar Code	***EAN Flag 2*** digit to be used for By-Weight labels (0-9).
By-Count Bar Code	***EAN Flag 2*** digit to be used for By-Count labels (0-9).
Std. Pack Bar Code	***EAN Flag 2*** digit to be used for Standard Pack labels (0-9).
Run Total Bar Code	Refer to By-Weight Bar Codes.
By-Weight Format	Select the By-Weight bar code format. Refer to the code explanations on the left. **0** NNNNN N$$$$ X (6-D Item/4-D Price) **1** NNNNN $$$$$ X (5-D Item/5-D Price) **2** NNNN$ $$$$$ X (4-D Item/6-D Price) **3** NNNNN C$$$$ X (5-D Item/C/4-D Price) **4** NNNNC $$$$$ X (4-D Item/C /5-D Price) **5** NNNNN ##### X (5-D Item/5-D Wgt) **6** NNNNC ##### X (4-D Item/C/5-D Wgt)
By-Count Format	Refer to By-Weight Bar Codes. (Default = 2).
Standard Pack Format	Refer to By-Weight Bar Codes. (Default = 2).
Run Tot/Mem Format	Refer to By-Weight Bar Codes. (Default = 2).
Barcode Type	Select UPC Barcode (Std. U.S.), EAN for EAN-13 Barcode, or 128C Barcode applications. UPC and 128C will have the same setup configurations.

Bar Code Format Codes:
N Item number Digits.
C Check Digit.
0 The number zero.
$ Total Price Digits.
# Weight Digit.
X Symbol Check Digit.
D Digit.

Reset To Factory Defaults

Touch RESET TO FACTORY DEFAULTS, then RESET to reset (clear) all battery backed memory. ***Warning! All user programmed label formats, presets, backup PLUs, marquees, etc. will be erased and replaced with factory default settings.***

Reset Labels To Defaults

Touch RESET LABELS TO DEFAULTS, RESET, then YES-RESET to reset (clear) all custom label formats and replace them with the default label formats, or touch NO-DO NOT to abort this function. ***Warning! All custom label format settings will be cleared!***

View Error Log

This is a factory diagnostic tool. Touch VIEW ERROR LOG, then VIEW to view the error log. Touch the screen to advance one page at a time. After the last page is viewed, touching the screen returns the display to the System Configuration Menu.

Clear Error Log

Touch CLEAR ERROR LOG, then CLEAR to clear all error log codes to 0.

Peripheral Configuration

To use the Model 8361 with DataBack or an Indexer, the following screens must be configured correctly. To configure the peripherals touch the SETUP, UNIT, and PERIPHERAL CONFIGURATION keys. Then select DATABACK or INDEXER when the *Select Device* window displays.

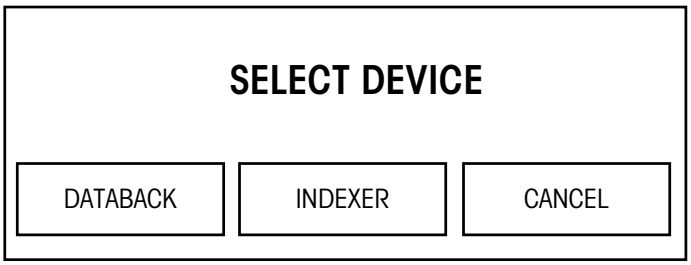


Figure 3-12: Peripheral Setup Selection Screen

Databack

The DataBack screen is used to setup the AUX serial port located on the rear of the controller. The AUX port can be used for DataBack, a PC program used to backup the scale setup information (label formats, screens, etc.).

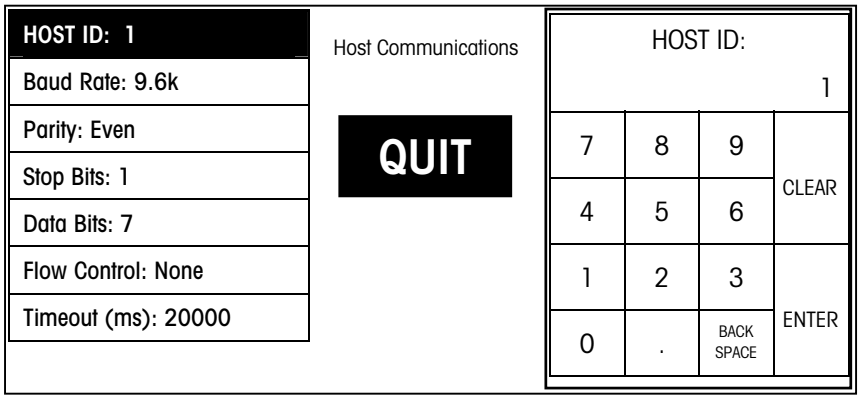


Figure 3-13: Host Communications Setup

Host ID	Two-digit ID. Must match DataBack. Default is 1.
Baud Rate	Default is 9.6k baud. Must match the baud rate in DataBack.
Parity	Default is EVEN for use with DataBack. Other selections are Even, Odd, Low, High, and Off.
Stop Bits	Default is 1 for use with DataBack. Other selections are 1.5 and 2.
Data Bits	Default is 7 for use with DataBack. Other selections are 5, 6, and 8.
Flow Control	Default is None for use with DataBack. Other selections are XON/XOFF, and RTS/CTS.
Timeout	Default is 20000ms for use with DataBack.

Indexer Setup

When the Model 8361 is used with an automatic Labeler/Indexer, select Indexer from the Peripheral Configuration Screen, then select the correct Indexer, as shown below. For the Model 706 Labeler, select Model 705.

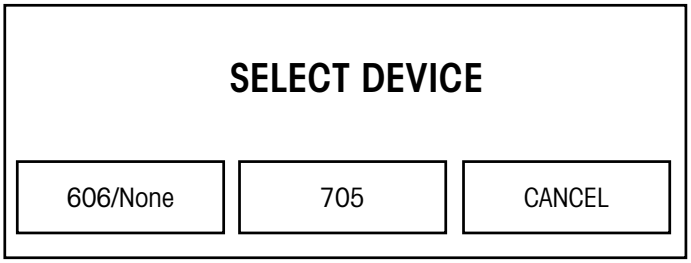


Figure 3-14: Indexer Setup

Wrapper Package Count

From the Unit Setup screen, touch WRAPPER PACKAGE COUNT. This function is used to enter a phone number that will appear on the display when a package count is reached. The following functions are available on this screen.

ALARM THRESHOLD - Enter a package count value that will trigger a service message. Default is 200000.

REPEAT AFTER THRESHOLD - Enter the number of packages to be wrapped before the service message reappears. Default is 500.

PHONE NUMBER - Enter the phone number of the servicing location to appear on the screen with the service message. The message will read "TIME FOR MAINTENANCE. THIS UNIT HAS NOW WRAPPED ##### PACKAGES. PLEASE CALL (###) ###-#### FOR SERVICE".

CURRENT COUNT - Displays the current count of packages across the wrapper. This value can be reset to zero.

PLU Screen Options

From Unit Setup, touch PLU SCREEN OPTIONS. From here, a custom PLU Edit screen can be configured and macro functions can be programmed.

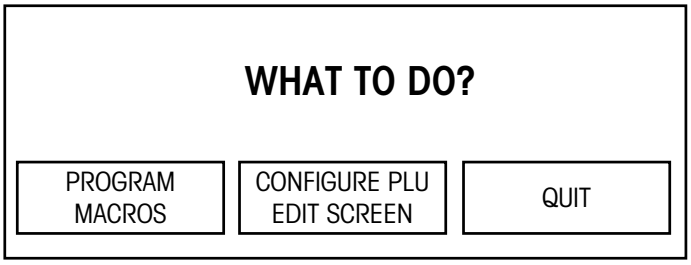


Figure 3-15: PLU Screen Options

Program Macros

Touch PROGRAM MACROS from the PLU Screen Options in Unit Setup. A screen with all the macros is presented.

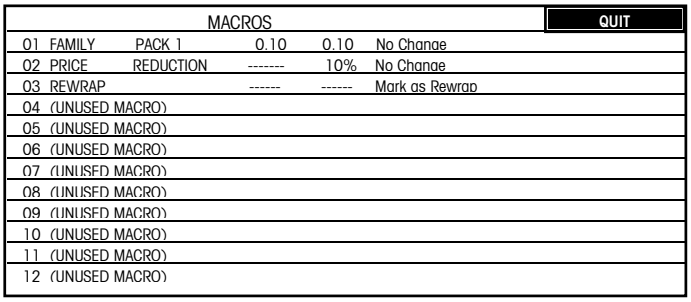


Figure 3-16: List of Macros to edit

To edit a macro, touch the macro's box. The macro edit screen will be presented with the following options.

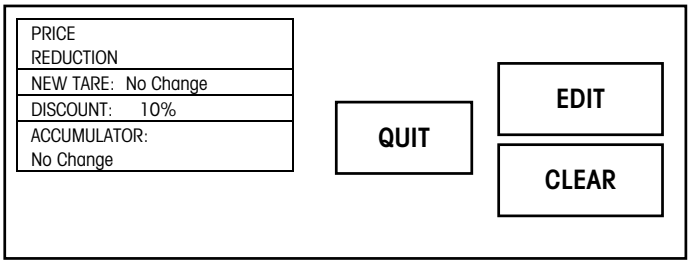


Figure 3-17: Options for editing a macro

MACRO NAME - Touch EDIT to change the macro name.

NEW TARE - This will set up a tare override value. On the numeric keyboard enter the new value.

DISCOUNT - This will establish the type of price reduction for a particular macro. Select "None", "%", or "Discount/Unit" and enter the new value on the numeric keyboard. For "Discount/Unit", the amount entered will be price off per pound.

ACCUMULATOR - This will select an accumulator for which the totals for the particular transaction will be directed to. Select from the choices on the right side of the screen: "No Change", "Next Accumulator", "Mark as Manual Price", "Mark as Rewrap", "Force to

AUTO", "Force to MANUAL", "Force to REWRAP", "Force to COMBINATION", or "Force to INVENTORY".

Configure PLU Edit Screen

Touch CONFIGURE PLU EDIT SCREEN from the PLU Screen Options in Unit Setup. The current PLU Edit Screen as currently configured will be displayed.

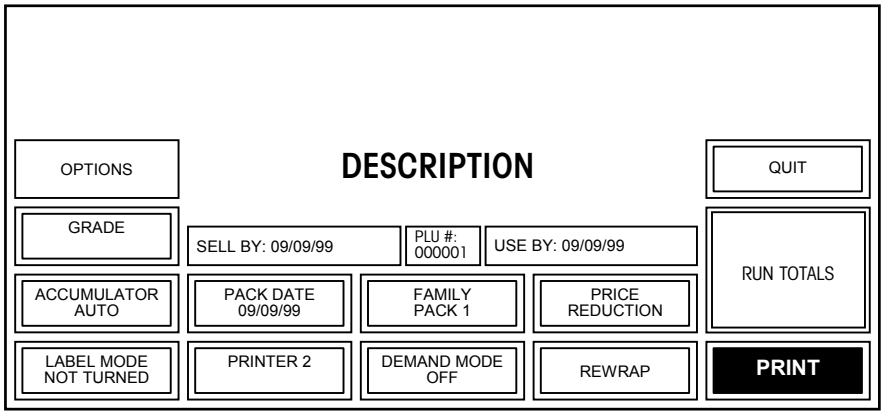


Figure 3-18: Current PLU Edit Screen Setup

Keys that can be changed are double boxed. There are 9 programmable keys on the PLU Edit Screen. In the screen above, the following are the programmable keys: Grade, Accumulator, Label Mode, Pack Date, Printer 2, Family Pack, Demand Mode, Price Reduction and Rewrap. Touch the key to be changed. A screen with available function keys will be presented. Touch DOWN to display Page 2. Select the new key for this location or QUIT. Upon selection, the operator is returned to the PLU Edit Screen to continue setup. The programmable keys are listed with their functions.

PACK DATE 99/99/99	ACCUMULATOR AUTO	FAMILY PACK 1	MACRO 6	QUIT DOWN
EXTRA TEXT 0	GRAPHIC: NONE	PRICE REDUCTION	MACRO 7	MACRO 11
GRADE	PRINTER 2	REWRAP	MACRO 8	MACRO 12
LABEL MODE NOT TURNED	PRINT INHIBITS	MACRO 4	MACRO 9	SAT GRAPHIC: SATELLITE GR
LABEL FORMAT NONE	DEMAND MODE OFF	MACRO 5	MACRO 10	PRINTER 2 BATCH

APPLY BOTTOM LABEL	QUIT UP

Figure 3-19: Options Available for placement on the PLU Edit Screen (Page 1 and 2)

The first two columns on the left plus the Satellite Graphic key in the bottom right are the default programmable key selections. The rest of the keys (Macro 4-12) are programmable macros.

PACK DATE - The date the product was packed and labeled.

EXTRA TEXT NUMBER - The number of the Extra Text that goes with that PLU.

GRADE - The number of the user programmed 0-15 grade descriptions.

LABEL MODE - Turn 90º, 180 (Alt. Turn), or Not Turned for label application on an automatic labeler.

LABEL FORMAT - Assigns a label format to be printed.

ACCUMULATOR - Assigns an alternate accumulator aside from that which is linked through the PLU. This function toggles between Auto, Manual, Rewrap, Combination and Inventory.

GRAPHIC - Used to override the graphic number assigned to the PLU record.

PRINTER 2 (off/GR/NG) - Allows override of printer 2 by turning it off, selecting a Nutrifact, a linked graphic, a store logo or a Satellite graphic.

PRINT INHIBITS - Touch this key to select which fields to inhibit from printing on the label.

DEMAND MODE - Used to enter the amount of labels to issue. The Printer must be set up for Stripped Mode to activate Demand Mode.

MACROS (12) - 12 macros are available for programming. Three standard macros are available:

REWRAP - A product can be rewrapped and placed in the Rewrap accumulator.

FAMILY PACK - Tare is changed to .1 lb or .1 kg and Price is reduced by $0.10 per unit.

PRICE REDUCTION - Reduces price by 10%.

SATELLITE GRAPHIC - Overrides the satellite graphic number.

PRINTER 2 BATCH - Sets up Printer 2 for batch mode printing.

APPLY BOTTOM LABEL - (Shown on Page 2 by touching DOWN) This is a toggle key used to command the Model 702 to apply bottom labels to all of the packages in a run. When the key is black, the Model 702 will apply labels to all packages until END RUN is touched. When the key is clear, normal label application occurs.

Change Department

From the Unit Setup screen, touch CHANGE DEPARTMENT to display a list of departments. The currently selected department will be double boxed. To select a new department, touch it. To exit without changing the department, touch QUIT. The department information is updated from the master when a new department is selected.

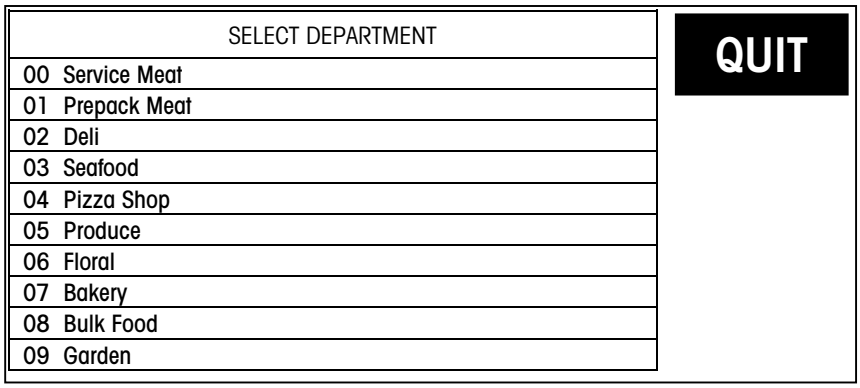


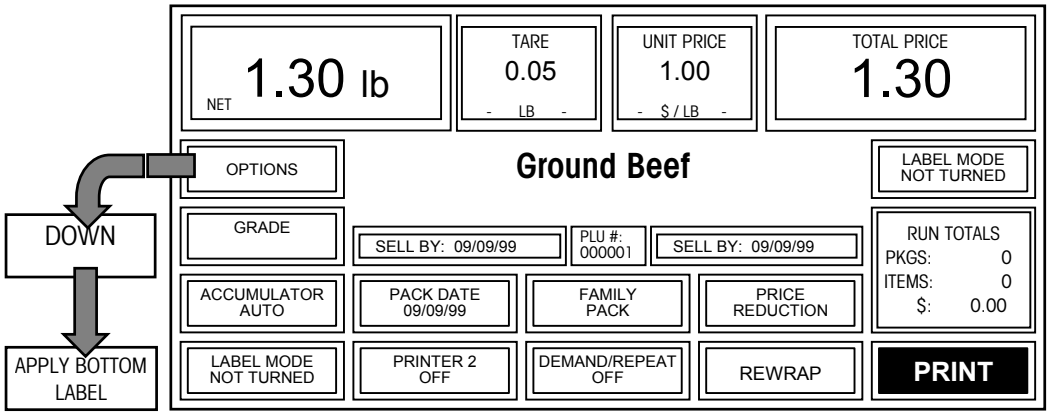
Figure 3-20: Change Department Setup Screen

Security Setpoints

This menu is for setup of price setpoints for application of security labels by the Model 702. Values can be set for "Price/Unit" and "Total Package Price". If the PLU record contains a field where "Security Lab" is set to YES, the setpoints are ignored. Default values are $0.00 for both.

The Model 8361 will send an "apply label command" if the unit price is equal to or greater than the Price/Unit setpoint value or if the total package price is equal to or greater than the Total Package Price setpoint value. This will work for all pricing modes.

Labels can also be applied for an entire run by using the "APPLY BOTTOM LABEL" key. The key is accessed by using the OPTIONS key (below), or the key can be added to the screen using the PLU Screen Options menu.



Program Label Formats

Before beginning a custom label format, the proper label size must be installed in the printer.

Enter Label Formats Screen

From the Unit Setup screen, touch PROGRAM LABEL FORMATS to enter the Label Formats menu.

Label Formats Screen Options

From the Label Formats screen, you can edit existing formats, create new formats, copy formats (default or custom), delete formats, and print test labels. To customize a label format, a new custom format must be created by selecting either COPY DEFAULT (which copies a default format template which can be modified), or by creating a new custom format from scratch by touching EDIT. When naming a custom format, make sure the name is unique and can be easily recognized from the format list. Don't forget to assign the format as default in the Printer Setup.

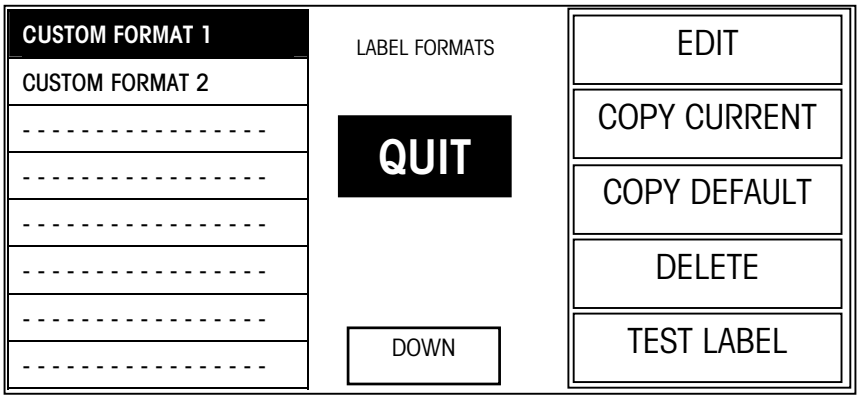


Figure 3-21: Program Label Formats Main Menu Screen

Edit an Existing Format

To edit an existing custom format, touch the format you wish to edit and then touch **EDIT**. Advance to **Editing a Label Format** section.

Create a New Format

To create a new format from scratch, touch an unused box (one with dashes). It will then be highlighted. Touch EDIT to create the label, which will have no name. Advance to **Edit a Label Format** section and immediately name your label.

Copy the Current Format

To create a new format starting with an existing custom format, touch the format you wish to copy (it will be highlighted), then touch the COPY CURRENT key. An exact copy of this format with the name **!New Format!** will appear in the next available box. Touch the **!New Format!** box, then EDIT to modify the label format. Advance to **Edit a Label Format** section and immediately rename the label.

Copy a Default Format

To create a new format starting with a default format, touch an empty box, then the COPY DEFAULT key. (If you touch a box that contains an existing label format, it will be overwritten.) A menu of the approximately 70 default formats will then appear. Touch the format you wish to copy. A copy of this format with the name **!New Format!** appears in the box you touched. Touch **!New Format!** then EDIT to modify the label format. Samples of all the default label formats are in Chapter 11. Advance to **Edit a Label Format** section and immediately rename your label.

Deleting a Label Format

To delete a custom label format, touch the format you wish to delete, then DELETE. You will then receive the message **DELETE FORMAT ARE YOU SURE?**. Touch YES to delete or NO to continue.

Printing a Test Label

To print a test label, touch the label format you wish to view, then touch TEST LABEL.

Edit a Label Format

From the Label Formats screen, touch the desired label format, then EDIT. The Label Setup screen will appear. (If it is a new format, all of the boxes will be blank.) The first box represents the name of the format, and the remaining boxes represent entities on the label.

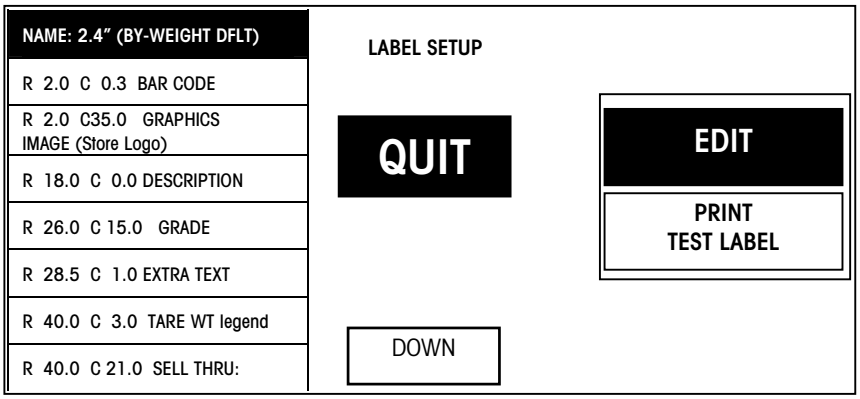


Figure 3-22: Edit a Label Format Screen

Naming a Label Format

Rename all new formats to avoid confusion. Touch the box, then the EDIT key to edit the name. Use the BACKSPACE key to delete the existing characters, or to delete the entire line, touch SHIFT then BACKSPACE. Touch ENTER when done. You will now begin creating, editing, and deleting label entities. At any time, touch TEST LABEL to print a test label.

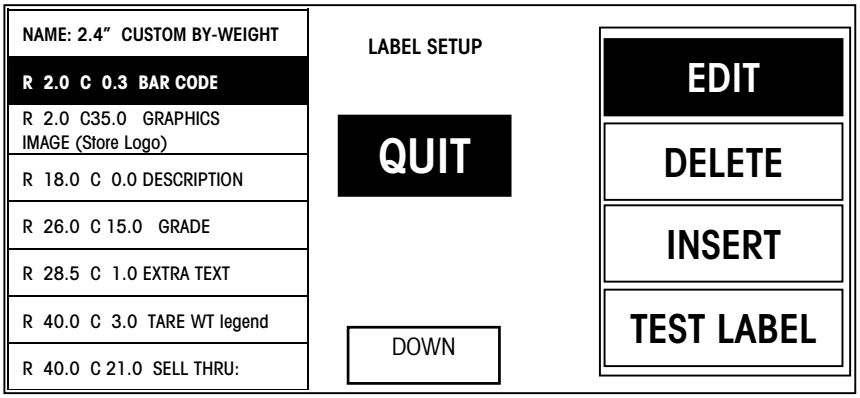


Figure 3-23: Edit Label Entities

DELETE

To delete an existing entity, touch the entity box, then DELETE. The prompt **DELETE FIELD ARE YOU SURE?** will appear. Touch YES to delete or NO to continue without deleting.

EDIT/INSERT

To add a new entity, touch a blank **[----------]** box, then touch EDIT or INSERT, A new field **[----------]** will appear above the highlighted field. The Field Setup screen will appear with the top box highlighted.

EDIT

To edit an existing entity, touch that field then EDIT. The Field Setup screen will appear as in the figure below with the top box highlighted. The top box represents the entity (the type of field on the label), while the following boxes represent physical parameters (location and size) of the entity.

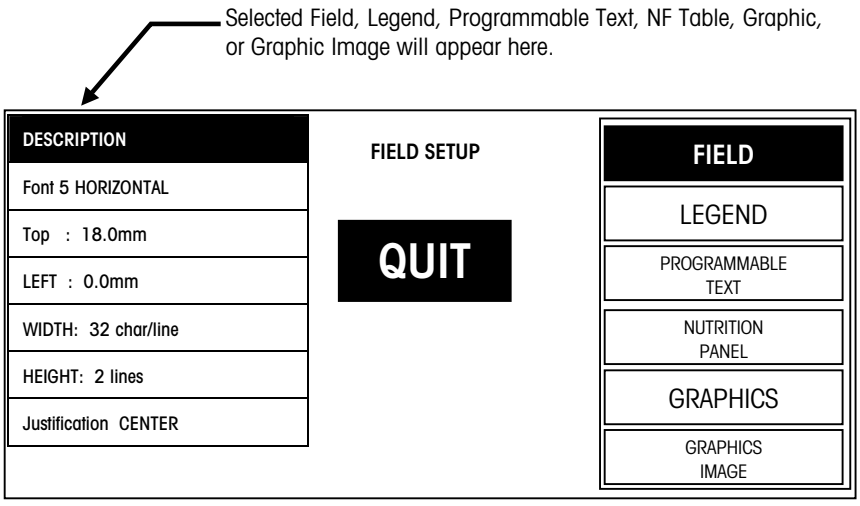


Figure 3-24: Field Setup Screen

Changing a Label Entity

To change the entity, touch the top box, then the Label Entity type you wish to choose from on the right. Follow the instructions below for the Label Entity types to choose the entity.

Label Entity Types:

Fields

Fields represent data from the PLU record that you wish to print on a label, such as net weight, unit price, total price, etc. To select (or change) a field type, touch the top box, then the FIELD key. The list of available fields will display. Page through the menu to find the desired field and touch the box to select it.

Legends

Legends are standard text items that can appear as captions for the fields to explain them (i.e., "Unit Price", "Net Weight"). To select a legend, touch the top box, then the LEGEND key. A list of available legends will appear. Page through the menu to find the desired legend and touch it to select.

Programmable Text

Programmable text can be a custom legend or a message to be printed on each label. To select or program text, touch the top box, then the PROGRAMMABLE TEXT key. A list of existing text entries will appear.

To edit an existing text, touch the text box, then EDIT. To create new text, touch a blank box **[----------],** then EDIT. When creating or editing text, an alphanumeric keyboard will appear. Make the changes, then touch ENTER to continue.

Note: After the text is created or edited, it will still need to be selected. To select text, touch the desired text and then touch SELECT.

Nutrition Panel

Nutrition Panels contain nutritional information in a standard template. There are several types of Nutritional Panel templates that can be assigned in the PLU (see the Master Programming Manual). To place a nutritional panel in your label, touch the top box, then the NUTRITION PANEL key. For nutritional panels, since the template is chosen in the PLU, only the location can be adjusted (mm from top and left). The other selections are active but do not affect the Nutritional Fact panel. Nutrition Panels are available in 5 formats, Vertical Standard, Vertical Simplified, Linear Landscape, Linear Landscape, and Tabular, which are assigned through the PLU numbers.

Graphics

Simple graphics can be added to your label. To program graphics, touch the top box, then the GRAPHICS key. The graphics types appear on the right side of the screen. Select the graphic type you want. Graphics boxes can have text inside of them. Filled boxes will be black with white text. To achieve this, place the text and the box location in the same place. In Graphics fields, Font and Justification do not affect the graphics. For Width and Height, Top and Left, the dimensions are in millimeters.

Graphics Images

Graphics Images assigned in the PLU can be printed on the label. Image types include: Linked graphics (from the master), Store Logo, Satellite Graphics, Safe Handling. To add a Graphics Image, touch the top box, then the GRAPHICS IMAGE key. You can only choose the location of the top left corner of the graphic image in millimeters. All other keys will be active but do not affect the graphic image. Graphics Images can not be scaled. Their size is fixed when

they are scanned in. (See Master Programming Manual or Intelli-Net manual for details.)

Editing an Entity's Physical Characteristics

Font

Fonts H1-H7 are horizontal fonts and V1-V7 are vertical fonts Font V6 or H6 (Vertical or Horizontal) is a numeric font only. This characteristic does not affect Nutritional Panels, Graphics, or Graphics Images.

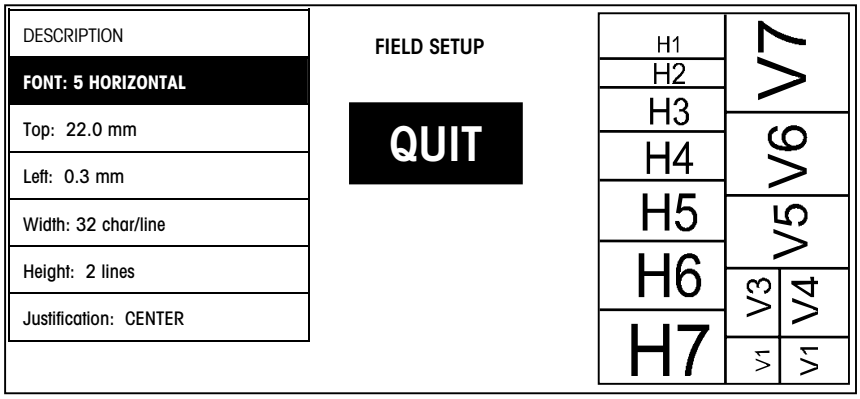


Figure 3-25: Changing the font size on a label entity

Top, Left:

Determine the number of millimeters down and millimeters across you want this entity to appear on the label. To assign the values touch the appropriate box, enter the value, then touch ENTER. Label entities *can* be programmed to overlap, but problems may occur.

Width, Height:

The function of these selections depends on the type of field. To adjust the size, touch the appropriate box and enter the value through the numeric keyboard.

For text entities (fields, legends, and programmable text), a default value will automatically enter. In some cases, however, you may wish to limit or increase the number of characters (width) on one line, or the number of lines of characters (height). One application for changing the width is if you wish to increase the characters to fill an entire row of the label and set the justification to center the field across the label. Changing the height would allow for multiple lines of extra text or to change the UPC symbol size.

The Width and Height keys do not affect Nutrition Panels. The size of the panel is determined by the NF template chosen in the PLU. For reference, the sizes of the different Nutritional Panel templates are listed below. To know the exact size, you will need to know what Nutritional Panel templates are assigned to the PLUs. For details, see the **Smart*Touch*®** Master User's Guide.

Panel Template	Width (mm)	Height (mm)
Vertical Standard	40	Variable
Vertical Simplified	40	Variable
Tabular	24	91
Linear Landscape	Variable	64
Linear Portrait	64	Variable

All values refer to templates with all the "required fields", but without "voluntary" information. If voluntary information is included, the dimension will be larger.

The Width and Height keys do not affect Graphics Images. The size of the image is fixed, and the image can not be scaled. If possible, you should determine the size of the graphics image before formatting your label. (For details on creating and loading graphics images, see the Intelli-Net User's Guide or the Master Programming Manual.)

Justification:

Justification determines the horizontal alignment of the text within the defined cell. (The cell is defined through the Height and Width keys.) This is necessary because in different PLUs, the same field can be different lengths. For example, the PLU description defaults to a maximum of 32 characters, but it is typically less. Proper placement (column adjusted so that a full 32 characters would be centered) and size (width = 32 characters) of the description field with CENTER justification will center the description across the label. To select the justification, touch the last box, then either LEFT, RIGHT, or CENTER. Justification does not affect Nutrition Panels, Graphics, or Graphics Images.

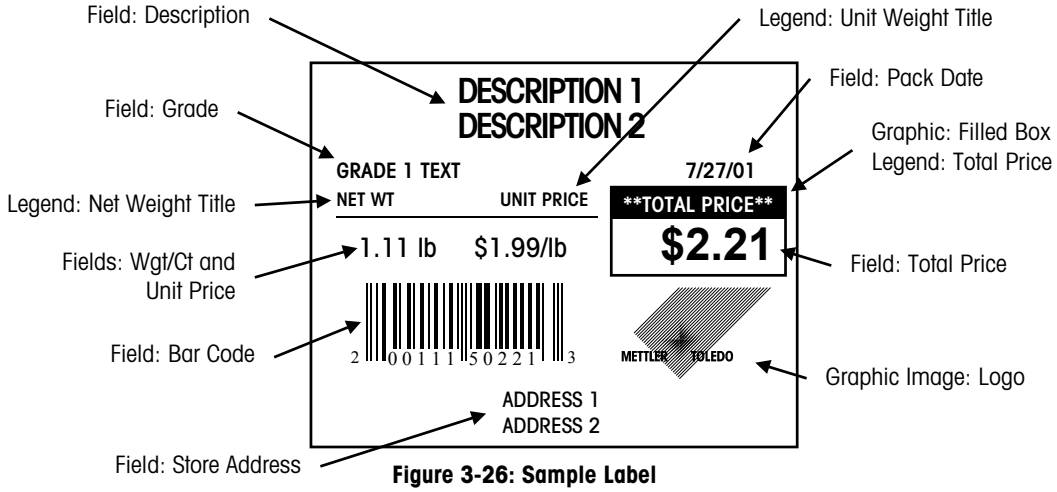


Figure 3-26: Sample Label

Exiting from Editing Label Formats

When finished creating your custom labels, a message screen will display **Remember to Assign Format!.** To clear the message, the operator must touch the continue key. This message is a reminder that simply editing a label format does not assign it to a PLU. Once a label format is created, it is not active until it is assigned through the Printer Setup menu.

PLU Options

From the Unit Setup screen, touch PLU OPTIONS to enable/disable manual overrides and key functions. Touch the boxes to toggle the condition from **YES** to **NO** (yes meaning manual override is allowed) or **AVAILABLE** to **NOT AVAILABLE**. Default selections are shown below.

When the functions are enabled, the key will be "double boxed" as it appears on the PLU Edit Screen to indicate the value can be overridden or the function is available for operation. Touch DOWN to display the second page options.

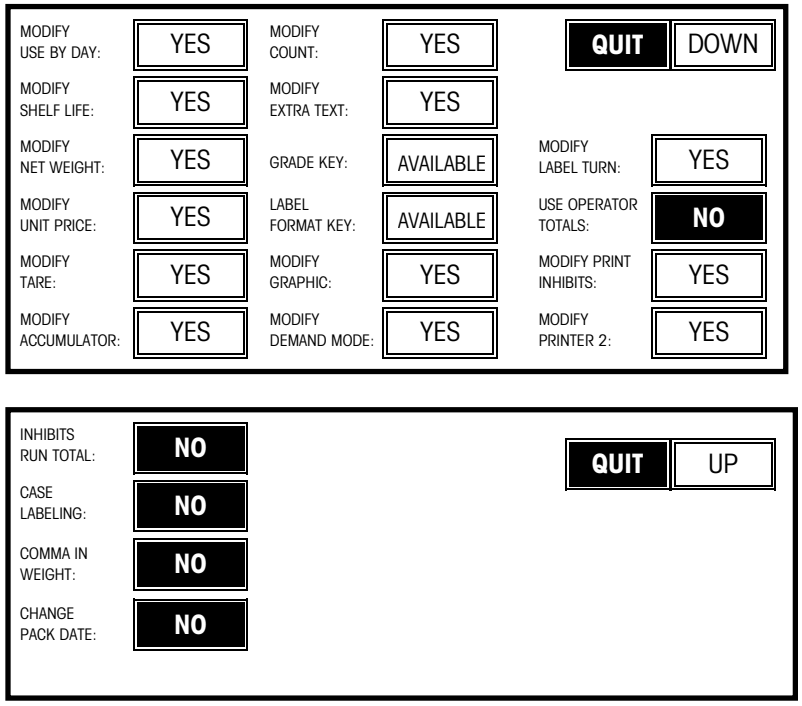


Figure 3-27: PLU Options Screen 1 and 2

Program Password

From the Unit Setup screen, touch PROGRAM PASSWORD. First, enter the Supervisor password (1-9999).

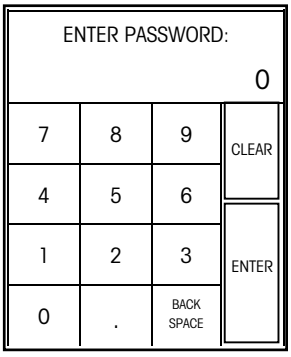


Figure 3-28: Screen for changing the password in Unit Setup

After entering the supervisor password, you will be asked "Enter/Change Operator Password?" Select YES to enter the operator password, or NO to skip this step. You must enter a Supervisor password in order to enter an operator password.

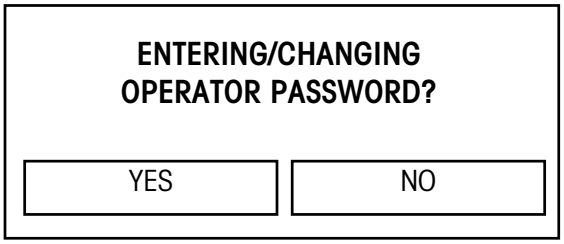


Figure 3-29: Operator Password

If Yes is selected, the supervisor can then select which functions to disable when an operator enters Unit Setup. Disabled functions will be displayed as grayed keys in the Unit Setup screen. To disable the password function, touch CLEAR.

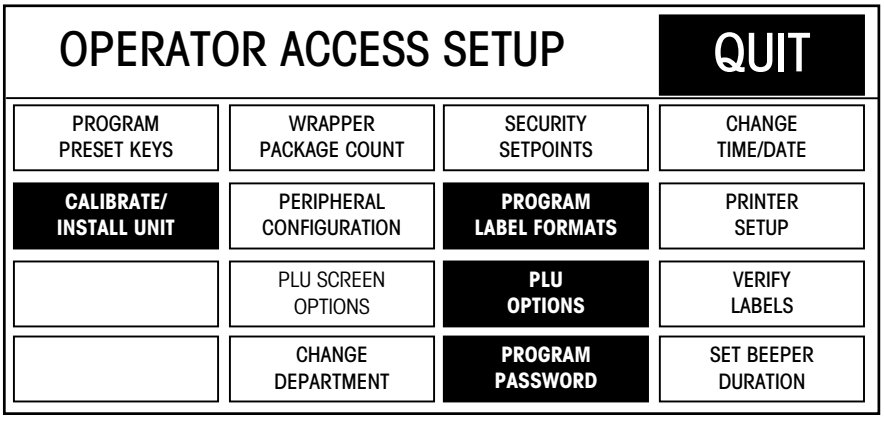


Figure 3-30: Operator Access Setup Menu

Change Time/Date

From the Unit Setup screen, touch CHANGE TIME/DATE to bring up the Time and Date menu. To make changes, touch the appropriate menu option window and follow the instructions indicated below.

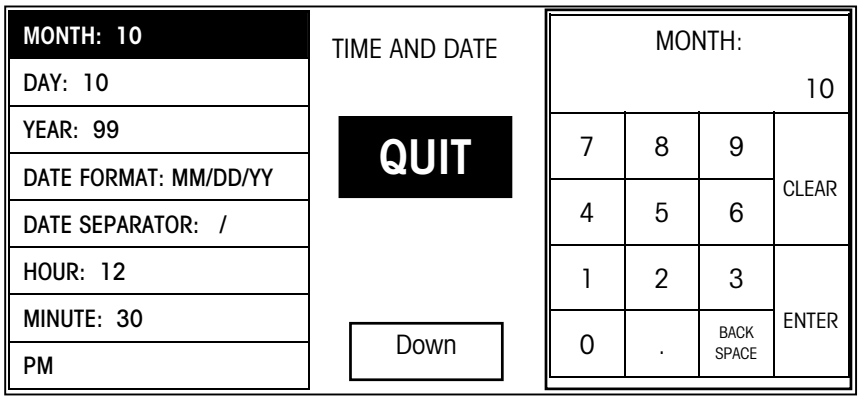


Figure 3-31: Change Time/Date

Month Enter the current numeric month (1-12) through the numeric keyboard.

Day Enter the current numeric day (1-31) through the numeric keyboard.

Year Enter the last two digits of the current year through the numeric keyboard.

Date Format Select the date format (MM/DD/YY, DD/MM/YY, YY/MM/DD, or YY/Mon/DD) by touching the appropriate window.

Date Separator Choose the desired date separator (/, -, or .) by touching the appropriate window.

Time Format Select either 12 or 24 hour formats.

Hour Enter the current hour (1-12) through the numeric keyboard.

Minute Enter the current minute (00 - 59) through the numeric keyboard.

PM/AM Select the appropriate time period (AM or PM) by touching the appropriate window.

Send Time & Date To Master (Touch Down to display this prompt) Touch this window, then SEND to send the time and date from this unit to the master unit.

Date Forwarding Hour: 24 (Touch Down to display this prompt) On the numeric keyboard, enter the hour after which "Pack Date" will be incremented. (This is displayed after touching DOWN.)

Printer Setup

From the Unit Setup screen, touch PRINTER SETUP to set up and assign label formats to Printer 1 or Printer 2.

Figure 3-32: Initial Screen for Printer Setup

Printer 1 Setup

To set up Printer 1, touch PRINTER 1. The following screen will then display. "LABEL SIZE SELECTED" indicates the default label size in use. To select a new label size, key in the number of the label size (0-4) and touch ENTER, or touch the label size, then touch the SELECT key. The **Send Resident Graphics** key is used to send the satellite logo graphic to the printer.

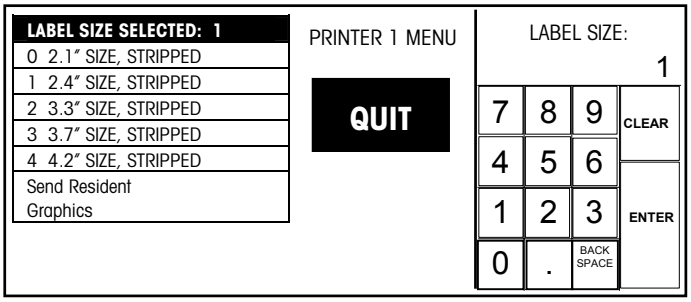


Figure 3-33: Menu Options for setting up Printer 1

To edit a label size, touch that label size then touch EDIT. Two screens are available by touching UP or DOWN to configure a particular label size.

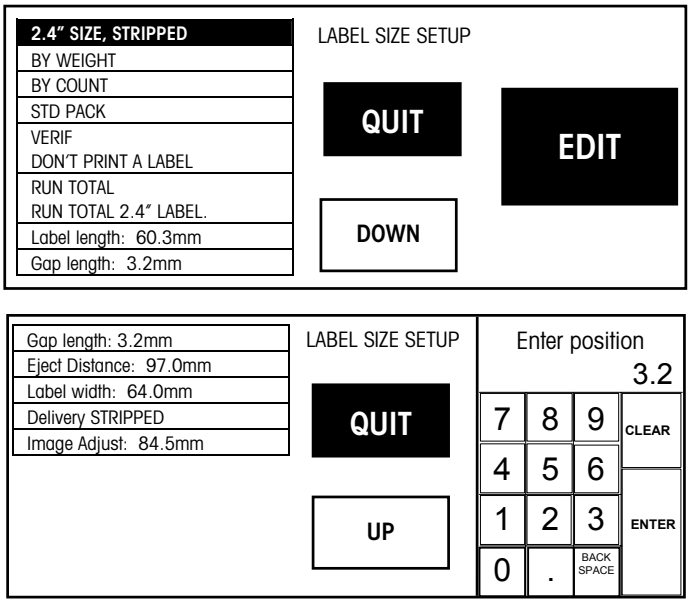


Figure 3-34: Setup Menu for a particular label size

On the first screen (above), the top box displays the name of the label that can be edited with the alphanumeric keyboard. The next 3 keys list the various PLU types. Touch a PLU type (BY WEIGHT, BY COUNT, or STD PACK) then EDIT. Once a type has been selected, a label style screen will be presented. Touch a label style then EDIT to edit or TEST LABEL to print a sample. If EDIT is selected, pages of label formats will be available to select from. Select a label format and then quit to select a new format for the current label style. Label format 0 is the default format that will be used if the value of the LABEL STYLE field in the PLU record is zero. Formats 1-7 are used for alternate formats

Default Label Styles:
0 Data Only
1 Data w/ET
2 Linked Graphic
3 Satellite Graphic
4 Safehandling Printed
5 Space for Preprinted SH
6 NF Panel
7 Data w/ET

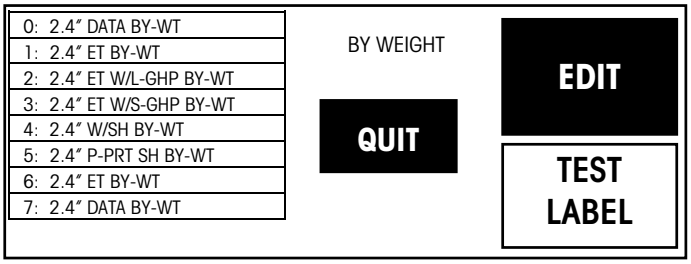


Figure 3-35: Label Formats available for "By-Weight" PLU's

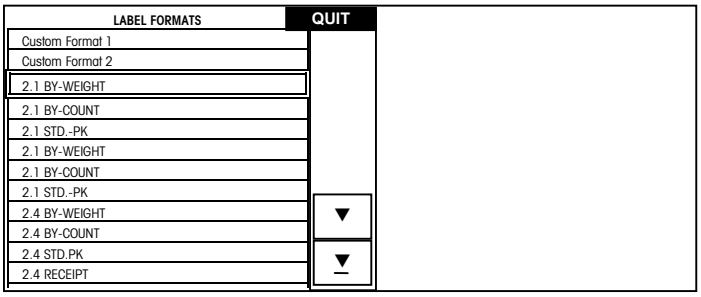


Figure 3-36: Label Formats available for 0-7 slots for 2.1" labels

The next two keys on the Label Size Setup screen (Figure 3-33 Screen 1) are VERIF and RUN TOTAL. They indicate the label format for verification labels and run total labels. Touch EDIT to adjust the label format for each of these types of labels.

The rest of the keys on Screen 1 and 2 (Figure 3-33) are for printer adjustments, as follows:

Label Length–This key allows entry of the label length (in mm), if it is different than the default lengths. When a certain default label size is selected, the default length for that label size will be automatically entered into this field.

Gap Length–The Gap Length (in mm) is used to compensate for variances in different label suppliers. The standard Gap Length for Mettler Toledo specified labels is 3.2 mm. Note: 0.0 mm is used for continuous strip labels.

Eject Distance–The Eject Distance (in mm) is used to adjust where the label stops after printing. The default is 97.0 mm. This value is the distance from the Gap Sensor to the edge of the Stripper Bar. To eject the label farther out, enter a higher value. To stop the label farther in, lower the value.

Label Width–This function is used to set the label width (in mm). The default is 64 mm. The label format is centered based on this setting. Increasing the width will shift text to the left of the label. Decreasing the width will shift text to the right of the label.

Delivery–This function controls the Liner Take Up motor and label delivery method. Stripped will deliver the labels peeled from the liner, with the liner wound up on the take up roller. Unstripped will deliver the label to the operator with the liner attached to the

labels. In the unstripped mode, multiple labels can be preprinted and attached to the package at a later date.

Image Adjust–The Image Adjust (in mm) is used to raise or lower the printed image on the label. The default is 84.5 mm. To raise the image on a label, lower the value. To lower the image on a label, increase the value.

Printer 2 Setup

To setup printer 2, touch the Printer 2 key from the PRINTER SETUP screen. The second label can be one of the following: NONE, NUTRIFACT, LINKED GRAPHIC, STORE LOGO or SATELLITE GRAPHIC. Refer to the Printer 1 setup section for an explanation of the other functions on this screen.

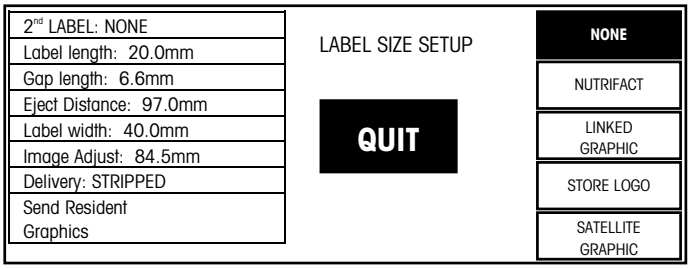


Figure 3-37: Options available for setting up Printer 2

Verify Labels

From the Unit Setup screen, touch VERIFY LABELS to print verification labels for all selected items in a department. To make changes, touch the appropriate menu option window and follow the instructions indicated below. The label format for Verify Labels is selected in Printer Setup.

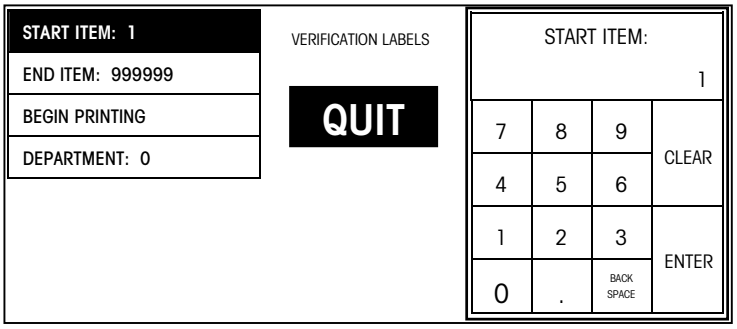


Figure 3-38: Verify Labels Setup Screen

START ITEM: 1 - Enter the beginning of the range of PLU numbers to print.

END ITEM: 999999 - Enter the end of the range of PLU numbers to print.

BEGIN PRINTING - Touch this window to begin the printout. To stop the printout in progress, touch the screen.

DEPARTMENT: 0 - Touch SELECT to generate a list of departments. Page through the list and touch the desired department to select it.

Set Beeper Duration

From the Unit Setup screen, touch **SET BEEPER DURATION** to display the numeric keyboard. Key in a value (0-10), with 0=no beep and 10=long beep, and touch **ENTER.**

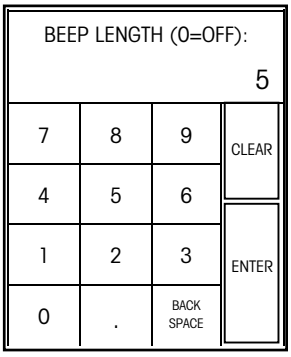


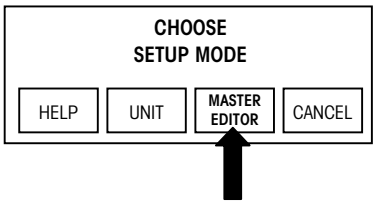
Figure 3-39: Setting the Beeper Duration Screen

Smart*Touch*® Master Editor

For **Smart*Touch*®** Master Operating and Programming Instructions, refer to the **Smart*Touch*®** Master User's Guide A14736800A.

Any **Smart*Touch*®** Satellite or Client on the network can access a **Smart*Touch*®** Master database and configuration. Only one unit at a time can access the master. The master will send the message **Master Editor Currently Unavailable** to the other unit attempting access. Refer to the **Smart*Touch*®** Master User's Guide for instructions for the other functions, Edit, Quick, Print, Report, Clear, and Copy.

There are three levels of password protected access to the master: Master Access, Department Access, and Operator Access. Master Access allows access to all functions. Department Access allows access for any department that matches the department password. Operator Access allows only viewing and printing data. No changes can be made with Operator Access. If no passwords are programmed, anyone at any station can make changes in the master editor for any department.



To access the master editor, touch SETUP then touch MASTER EDITOR (shown at left). When asked for the master password, touch ENTER (if no password has been programmed) or enter the password if passwords have been configured. ***(Note: If the master password is not known, use the service password 7627.)*** The Master Editor screen is shown below.

Edit	Quick	Print	Report	Clear	copY	conFig	QUIT ESC
Master access	Current Dept: 1	VER: X.XX	X123456R	Date: 12/12/01			

Figure 3-40: Smart*Touch*® Master Editor Screen

To configure the master, first touch **conFig** to display the drop down menu.

Edit	Quick	Print	Report	Clear	copY	ConFig	Quit
					pLu record defaults		
					PAsswords		
					Store/department info.		
					Department number		
					auTo configure rate		
					Master peripherals		
					dataBase diagnostics		
					setUp master		
					Initialize RAM		
Master access	Current Dept: 1	VER: X.XX	XXXXXXXR	Date: 12/12/01			

Figure 3-41: Configure Master

The configuration options under the CONFIG key are as follows and explained in detail in the following sections:

PLU Record Defaults	Configure Accumulator Names and enable/disable duplicate Item Numbers.
Passwords	Set the Master and Department passwords. To clear a password, enter a zero.
Store/Department Info	Configure the Store Name and Address (used on reports), Department Name and Address (used on labels), Department UPC, and Operator Name and Number.
Department Number	Used to select the Current Department (shown at the bottom of the screen) for programming and configuration in the Master Editor.
Auto Configure Rate	Auto Configurate Rate is the automatic transmission of satellite addresses (along with a request for connection command) to addresses not yet connected to the network. This eliminates the need to enter all of the Unit ID's manually. This value (1 to 5) is the number of seconds between network autoconfigure sequences. The default is 5.
Master Peripherals	Configure the master report printer and host serial ports
Database Diagnostics	Used for factory testing only.
Setup Master	Select the weight increment, currency symbol, date format, date separator, time format, barcode style, obsolete PLUs, and Master Network setup.
Initialize Ram	***WARNING! This selection clears all records from the database.*** This selection must be used to set up new masters before programming records or downloading files. This selection can also be used to clear the RAM if a corruption is suspected in the database. If attempting to salvage records due to a corruption, first use Intelli-Net or DataBack to backup any usable records, then reload the database after initializing.

PLU Record Defaults

Touch CONFIG followed by PLU RECORD DEFAULTS to present a **SELECT DEFAULT OPTION** message with three options. Touch PLU ACCUMULATOR NAMES to edit the accumulator names, ITEM NUMBER DUPLICATION to set the item number default, or CANCEL to return to the Master Editor Menu.

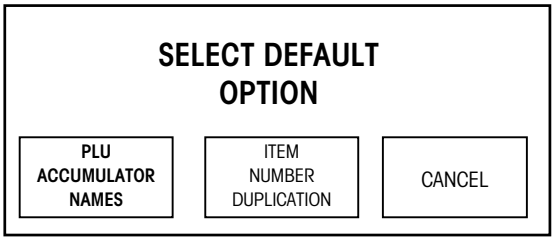


Figure 3-42: Configure PLU Record Defaults Screen

PLU Accumulator Names

When this option is chosen, a screen is displayed with a list of the five default accumulator names. Touch the accumulator you wish to edit, and make changes to the accumulator name (up to 15 characters) through the alphanumeric keyboard. Touch QUIT when you are finished editing to return to the Master Editor Menu. These names appear on the accumulator reports.

Item Number Duplication

When this option is chosen, an **ALLOW ITEM NO. DUPLICATION** message is presented with three options. Touch YES to allow item number duplication, NO to require unique item numbers, or CANCEL to return to the Master Editor Menu without making a change. Note: If the Satellite Unit uses the "Call By Item Number" option for PLUs, the Item Numbers must be unique.

Passwords

This function is used to assign Master and Department passwords. To change a the passwords, touch CONFIG followed by PASSWORDS to display a list of passwords. (The Master Password will be first followed by all of the department passwords.)

Locate the password you wish to change and touch that line. Enter the new password (up to 4 digits) through the numeric keyboard. When finished editing passwords, touch QUIT to save the changes and return to the Master Editor Menu. Note: If the password is '0', then access to the Master Editor for that level can be gained by touching ENTER at the "Enter Password numeric keyboard" without entering a '0'.

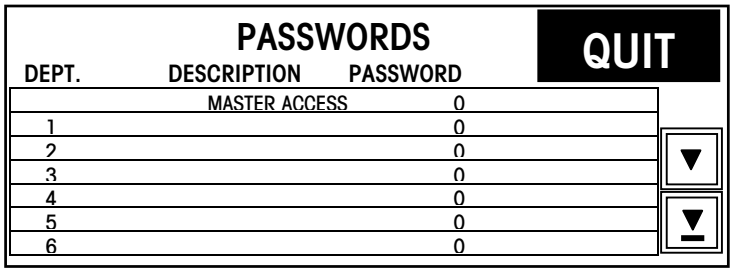


Figure 3-43: Configure Password Screen

Store/Department Info

Touch CONFIG followed by STORE / DEPARTMENT INFO to display the Information Edit screen.

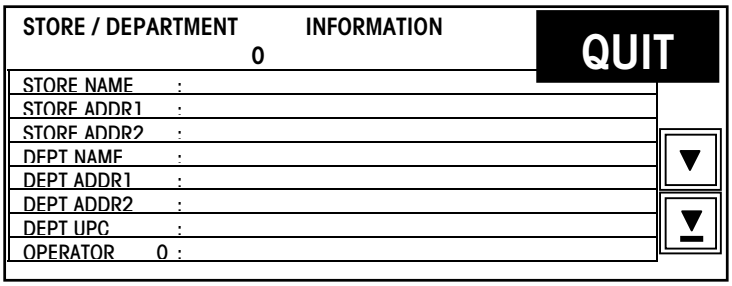


Figure 3-44: Store Information Edit Screen

To edit the field, touch the corresponding line and follow the editing instructions. When finished editing, touch QUIT to save the changes and return to the Master Editor Menu.

Edit Name/Address Information

To edit the store or current department Name or Address, touch the corresponding line and make the changes through the alphanumeric keyboard. The names can be up to 12 characters, while the address lines can be up to 32 characters.

Edit Current Department Bar Code Number

To edit the UPC number, touch the **DEPT UPC** line and then enter the Bar Code number for the current department. This number can be used in place of the Item Number for some Bar Code formats, and can be up to 10 digits.

Edit Operator Names

Operator Totals allow totals to be recorded for up to 30 operators per department. The operator numbers can be any 1 to 4-digit number from 1-9999 and do not need to be sequential. To enter new operator names, touch one of the **OPERATOR** lines and then enter the desired operator number (1-9999) through the numeric keyboard. When the alphanumeric keyboard displays, enter the operator name (up to 20 characters). Note: The operator slots that are not defined have an Operator Number of 0. Up to 30 operators can be defined per department. (Page through the list to find additional operator slots.) The operator totals must be enabled in each satellite for accumulation to take place in the master.

Department Number

To change the Master Editor current department, enter the new department number through the numeric keyboard or choose from the list. The new current department number will be displayed at the bottom of the Master Editor Menu screen.

Auto Configuration Rate

This section is used to set the rate of Autoconfiguration. Autoconfiguration is the transmission of satellite addresses (along with a request for connection command) to addresses not yet connected to the network. This permits addition of new satellites to the network without having to manually tell the Master about the new satellite. The autoconfigure rate is the time (in seconds) between each network autoconfiguration sequence. To set the auto configure rate, touch CONFIG followed by AUTO CONFIGURE RATE and enter the desired number of seconds (4-60) through the numeric keyboard. Setting the rate low may slow down network response. The default is 5.

Master Peripherals

Touch Master Peripherals to configure the master serial ports for the report printer and host. Select PRINTER to configure the Master Report Printer or HOST to configure host communication parameters to a computer or modem.

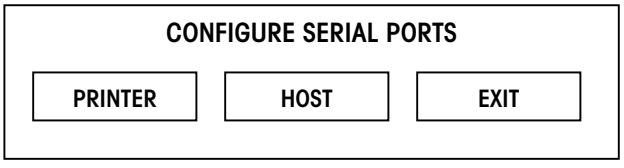
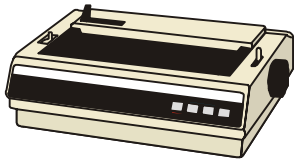


Figure 3-45: Master Peripheral Selection Screen



PRINTER

Touching PRINTER will open the Printer Setup screen below.

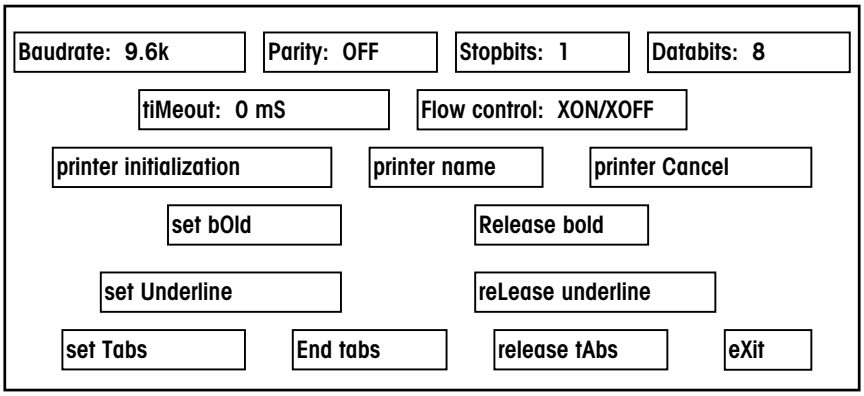


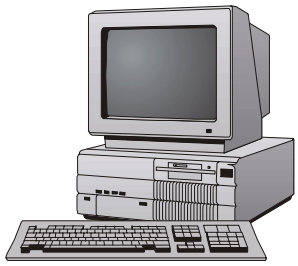
Figure 3-46: Printer Port Setup Screen

The options for the RS-232 serial-printer port are as follows (See the defaults listed in the Master Report Printer Setup section):

Baud Rate	From 1.2k to 115k. This must match the the printer. Default is 9.6k baud.
Parity	Even, Odd, Low, High, or Off (no) parity. Use Off for the 88XX Printers. When using 7 data bits, select Even Parity, and when using Off, select 8 data bits.
Stop Bits	Selections are 1, 1.5, and 2. Use 1 Stop Bit for the 88XX Document Printers. Most applications use 1 stop bit.
Data Bits	Selections are 5, 6, 7, and 8 data bits (sometimes-called word length). Use 8 data bits for the 88XX Document Printers.
Time Out	This selection is not used for normal printing functions. The default is zero.
Flow Control	Type of control between the host device and a peripheral that will start and stop data transfer to prevent an overflow condition. XON/XOFF is software handshaking and should be selected for the 88XX Document Printers.
Printer Initialization	This selection is used to enter printer Hex Control Codes used to set up the printer before printing a document. The standard initialization code for the 88XX is: 18,1B,40,1B,39,1B,49,00,1B,4D,0F,1B,42,3C.
Printer Name	This is used for reference only.
Printer Cancel	This hex code is used to stop or cancel whatever the printer is doing. The 8842/8843/8844/8845 use hex code 18 for cancel.
Set Bold	This hex code is used to turn on bold or emphasized printing. The 8842/8843/8844/8845 use 1B,45 for bold print.
Release Bold	This hex code is used to return the print to regular (non-emphasized) print mode. The 8842/8843/8844/8845 use 1B,46 for release bold.
Set Underline	This hex code is used to turn on underline printing. The 8842/8843/8844/8845 use 1B,2D,31 for underline print.
Release Underline	This hex code is used to turn off underline printing. The 8842/8843/8844/8845 printers use 1B,2D,30 for underline print.
Set Tabs	Tab spacing. The 8842/8843/8844/8845 use 1B,44 to set tabs.
End Tabs	End tabs are not normally used with the master reports.
Release Tabs	Releases tab spacing. The 8842/8843/8844/8845 printers use 1B,52.

HOST

Touching HOST will display the Host Port Setup screen below and allow configuration of the port for a host PC and DataBack.



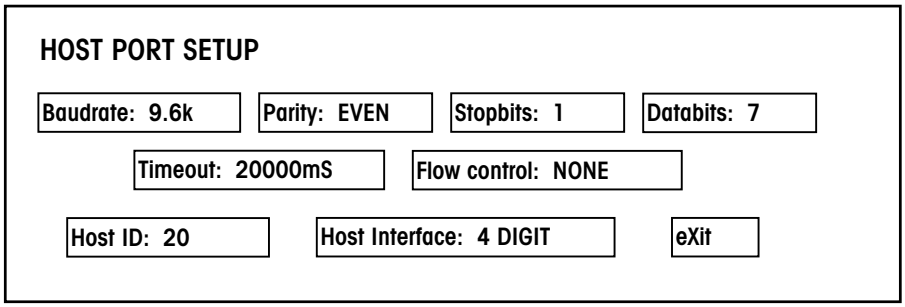


Figure 3-47: Host Port Setup Screen

The selections for the Host Port configuration are as follows:

Baud Rate — The baud rate (in Kilobytes) can be selected from 1.2k to 115.2k. This must match the baud rate of the host or DataBack. The default is 9600 baud. Note: High speed UARTS are recommended on the PC serial port for speeds above 9.6k baud.

Parity — Select Even, Odd, Low, High, and Off can be selected. Use EVEN parity for Intelli-Net and DataBack. (Note: Off and No parity are the same.) The default is EVEN.

Stop Bits — Selections are 1, 1.5, and 2. Use 1 Stop Bit for Intelli-Net or DataBack. The default is 1.

Data Bits — Selections are 5, 6, 7, and 8 data bits (sometimes called "word length"). Use 7 data bits for Intelli-Net or DataBack. The default is 7.

Time Out — This selection is used to end host communications if no response is detected. The default is 20000mS (milliseconds).

Flow Control — This selects hardware, software, or no handshaking. Flow Control sets up communication between the host device and a peripheral that will start and stop data transfer to prevent an overflow condition. Use NONE with Intelli-Net or DataBack. The default is NONE.

Host ID — The Host ID is used by a host computer to communicate with a specific device. This number must match the number programmed at the host to identify this master. ID numbers from 1 to 99 can be used, but must not be duplicated if other units are connected to the host. ***NOTE: POWER MASTER DOWN AFTER CHANGING THE HOST ID TO RESET THE ID IN MEMORY.*** The default is 01.

Host Interface — If using an old host protocol (host thinks master is an 8422-type master), this selection is used to configure the external host communications for a **6-digit PLU** or a **4-digit PLU** database.

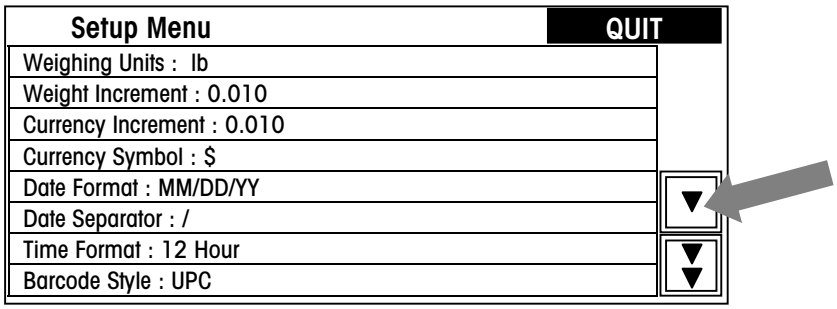
Database Diagnostics

This section is used for a factory diagnostic tool and should not be changed.

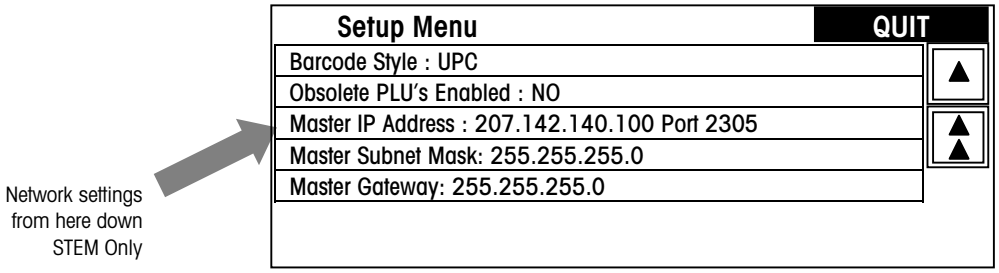
Setup Master

This section is defines master defaults including Weighing Units (lb/kg), Weight Increment, Currency increment, Currency Symbol, Date Format, Date Separator, and Time Format. Touch the Page Down key to display Barcode Style, Obsolete PLUs, and Master IP Address (STEM). When Obsolete PLUs are enabled, creating a regular pending PLU or PCO (Price Change Only) PLU will automatically create an Obsolete PLU with the old price, accumulators, effective time/date. The new PLU will have zero accumulators.

TNET Master and Version 1 STEM



Setup Menu - Screen One



Setup Menu - Screen Two

Figure 3-48: Setup Master Screens, Version 1 STEM

The selections on the setup screens are explained below.

Selection	Description
Weighing Units	This must match the weighing mode of the Clients and Satellites, either lb or kg.
Weight Increment	This must match the weighing mode of the Clients and Satellites. Normally 0.010 lb or 0.005 kg.
Currency Increment	The smallest division of the local currency.
Currency Symbol	When selected, the Alphanumeric keyboard will display. The symbol can be any character on the keyboard.
Date Format	Select from four different formats. MM/DD/YY, DD/MM/YY, YY/MM/DD, YY/MON/DD. Default is MM/DD/YY.
Date Separator	Select the slash "/", dash "-", or period "." for a date separator.
Time Format	Select either 12 hour or 24 hour time.
Barcode Style	Select UPC or EAN barcodes.
Obsolete PLU's Enabled	Enable or Disable obsolete PLUs. Obsolete accumulators are accumulators that are saved when weekly data for PLU's are updated.

Selection	Description
Master IP Address	This is the STEM's IP address and port number. The IP address is entered one octet at a time. The default value for this field is 255.255.255.000. The STEM's TCP port number used for host communications. A 4-digit value may be entered from the numeric screen. The default value for the port is 2305 should be used in most configurations. **Local Use Networks** - If the Ethernet network is local, arbitrary numbers can be selected for the IP Address. The IP Address consists of a group of four numbers from 0 to 255, separated by periods, for example: 207.142.140.101. Do not duplicate numbers on the network. **Use on Networks Connected to the Internet** - If the network connects to the Internet, the network IP addresses must be obtained and registered with American Registry for Internet Numbers (ARIN, http://www.arin.net). When used on the Internet, the IP Address is used to specify hosts and networks. Internet Protocol (IP) numbers are part of a global, standardized scheme for identifying machines that are connected to the Internet. Consult your Network Administrator on these issues.
Subnet Mask	The Subnet Mask is used to identify the local network when accessing an IP address on the Ethernet network. The mask is entered one octet at a time. A subnet mask is used with an IP address to subdivide a network into smaller networks, allowing a greater number of nodes on a network with a single IP address. The Subnet Mask is the part of the IP address used to represent a sub-network within a logical network. By using Subnet Masks, network address space is available that would normally be unavailable. Subnet Masks also ensure broadcasts are not sent to the whole network unless intended. The default Subnet Mask, 255.255.255.0, is recommended to reduce network traffic. When Subnet Mask, 255.255.255.0 is used, the broadcast range would be the local Subnet only as follows: 255.255.255.0 Subnet Mask 207.142.140.XXX IP Address with a broadcast range of XXX. 255.255.0.0 Subnet Mask 207.142.XXX.XXX IP Address with a broadcast range of XXX.XXX Using the Subnet Mask, 255.255.255.0, improves network performance by reducing broadcast traffic.
Gateway	The router's default gateway IP address. A router is used when accessing devices outside of the local network. The IP address is entered one octet at a time. The default value for this field is 255.255.255.000.

Version 2 STEM with DHCP

The new DHCP features will allow the client scale or scale server to obtain initial TCP/IP parameters from a DHCP or BOOTP server on the Ethernet network instead of manually setting these parameters.

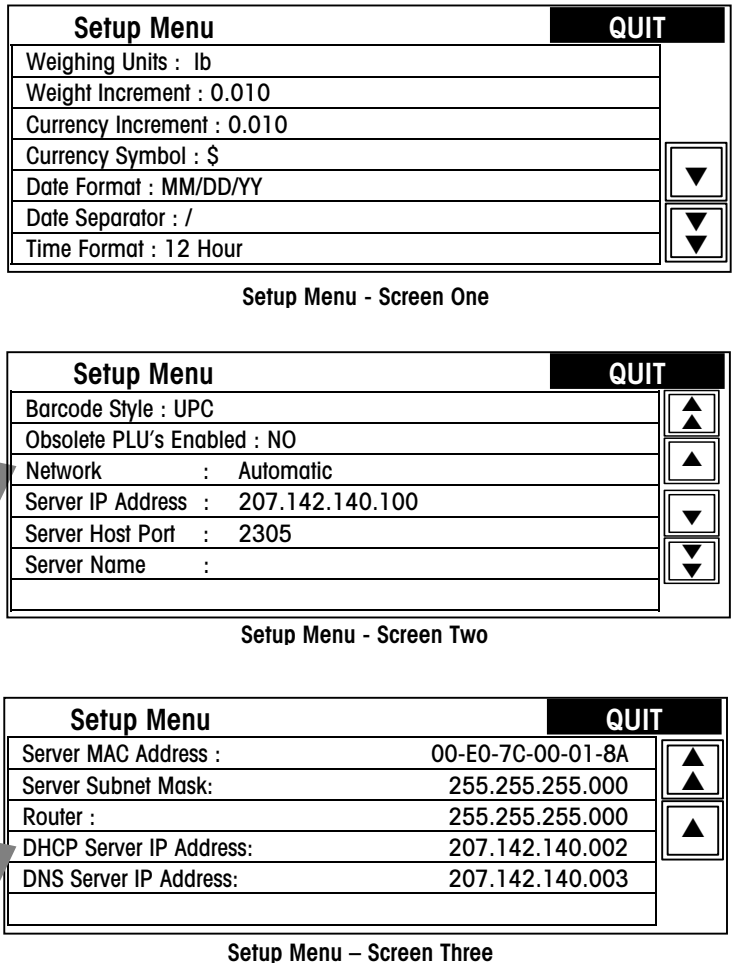


Figure 3-49: Setup Master Screens, Version 2 STEM

The selections on the setup screens are explained below.

Selection	Description
Weighing Units	This must match the weighing mode of the Clients and Satellites, either lb or kg.
Weight Increment	This must match the weighing mode of the Clients and Satellites. Normally 0.010 lb or 0.005 kg.
Currency Increment	The smallest division of the local currency.
Currency Symbol	When selected, the Alphanumeric keyboard will display. The symbol can be any character on the keyboard.
Date Format	Select from four different formats. MM/DD/YY, DD/MM/YY, YY/MM/DD, YY/MON/DD. Default is MM/DD/YY.
Date Separator	Select the slash "/", dash "-", or period "." for a date separator.
Time Format	Select either 12 hour or 24 hour time.
Barcode Style	Select UPC or EAN barcodes.

Selection	Description
Obsolete PLU's Enabled	Enable or Disable obsolete PLUs. Obsolete accumulators are accumulators that are saved when weekly data for PLU's are updated.
Network	You must first select the network boot type, **Manual** or **Automatic**. Automatic is the default. Automatic will use DHCP to automatically obtain the network boot information from a DHCP server. The parameter details are explained below. When **Automatic** is selected, the DHCP feature will be used. The "Server IP", "Server MAC", "Subnet Mask", "Router", "DHCP Server", and "DNS Server" fields will display but can not be changed. Changes will be allowed in the "Server Host Port" and "Server Name" fields. If **Manual** is selected, then the DHCP feature is disabled and the TCP/IP parameters must be entered manually. The "Server MAC" field will display but no changes are allowed. The "DHCP Server" and "DNS Server" fields will not display and changes are not allowed to these fields. Changes will be allowed in the "Server IP", "Server Host Port", "Server Name", "Subnet Mask", and "Router" fields.
Server IP	This is the STEM's current IP address. If the "Network" is set to "Automatic", this field cannot be changed. If the "Network" is set to "Manual" then this field may be changed. The IP address is entered one octet at a time. The default value for this field is 255.255.255.000. **Local Use Networks** - If the Ethernet network is local, arbitrary numbers can be selected for the IP Address. The IP Address consists of a group of four numbers from 0 to 255, separated by periods, for example: 207.142.140.101. Do not duplicate numbers on the network. **Use on Networks Connected to the Internet** - If the network connects to the Internet, the network IP addresses must be obtained and registered with American Registry for Internet Numbers (ARIN, http://www.arin.net). When used on the Internet, the IP Address is used to specify hosts and networks. Internet Protocol (IP) numbers are part of a global, standardized scheme for identifying machines connected to the Internet. A Network Administrator or System Engineer should be consulted on these issues.
Server Host Port	The STEM's TCP port number used for host communications. A 4-digit value may be entered from the numeric screen. The default value for this field is 2305 and should not be changed for most configurations.
Server Name	Local domain name for the STEM. All other devices on the network will reference the STEM by using this name when the "Network" is set to "Automatic". If more than one STEM is used on a network, each STEM must have a unique name. If not, only one STEM will be functional and allow connection by clients.
Server MAC	This is the STEM's hardware Media Access Control (MAC) address. Each Ethernet device has a unique 6-byte MAC address. This field is displayed but cannot be changed.

Selection	Description
Subnet Mask	The Subnet Mask is used to identify the local network when accessing IP address on the Ethernet network. If the "Network" is set to "Automatic" this field can not be changed. If the "Network" is set to "Manual" this field may be changed. The mask is entered one octet at a time. The default value for this field will be 255.255.255.000. For a Subnet Mask on a local network, use an unused address such as 255.255.255.0. A subnet mask is used with an IP address to subdivide a network into smaller networks, allowing a greater number of nodes on a network with a single IP address. The Subnet Mask is the part of the IP address used to represent a subnetwork within a logical network. By using Subnet Masks, network address space is available that would normally be unavailable. Subnet Masks also ensure broadcasts are not sent to the whole network unless intended. The default Subnet Mask, 255.255.255.0, is recommended to reduce network traffic. When Subnet Mask, 255.255.255.0 is used, the broadcast range would be the local Subnet only as follows: 255.255.255.0 Subnet Mask 207.142.140.XXX IP Address with a broadcast range of XXX. 255.255.0.0 Subnet Mask 207.142.XXX.XXX IP Address with a broadcast range of XXX.XXX Using the Subnet Mask, 255.255.255.0, improves network performance by reducing broadcast traffic.
Router	The router's (default gateway) IP address. The router is used when accessing devices outside of the local network. If the "Network" is set to "Automatic" this field can not be changed. If the "Network" is set to "Manual" this field may be changed. The IP address is entered one octet at a time. The default value for this field will be 255.255.255.000.
DHCP Server	This is the current IP address of the local network's DHCP server. This field will only be displayed when the "Network" is set to "Automatic" and can not be changed.
DNS Server	This is the current IP address of the local network's DNS server. This field only displays when the "Network" is set to "Automatic" and cannot be changed.

Config-Initialize RAM

This function will reset the master to factory defaults and ***will clear out all database files*** (PLU, NF, ET, Graphics, Totals, etc.). To access this function, select SETUP, MASTER EDITOR. Enter the password, then select CONFIG/INITIALIZE RAM. This displays a warning screen with a confirmation to reset the scale to factory defaults.

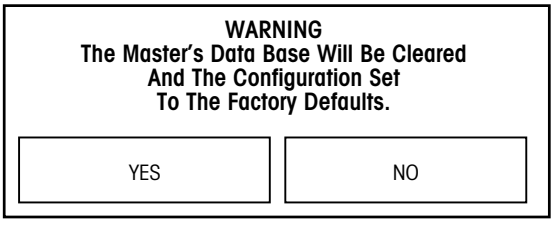


Figure 3-50: Initialize RAM selection screen

Master Report Printer

The optional METTLER TOLEDO® Model 8842, 8843, 8844, and 8845 RS232 serial printers (or other suitable RS232 Serial printers) can be connected to a **Smart*Touch*®** Master or STEM to print reports, totals information, PLU/ET listings, etc. After configuring the printer in the master editor, you must set up the printers as shown in Table 3-1. The illustration below shows cable wiring from the connector "Master Port 1 Printer" at the Model 8461 to the Model 88XX Printers. Refer to the appropriate printer Service Manual for additional information.

Switch	Description	8842/8843	8844/8845
SW1-1	Word Length ON=7, OFF=8	OFF	OFF
SW1-2	Parity Check ON=Enable,	OFF	OFF
SW1-3	OFF=None	ON	ON
SW1-4	Parity Bit ON=Even, OFF=Odd	OFF	OFF
SW1-5	DTR Polarity ON=-, OFF=+	OFF	OFF
SW1-6	Baud Rate (Set for 9600)	ON	ON
SW1-7	Baud Rate	OFF	OFF
SW1-8	Baud Rate	OFF	OFF
SW2-1	Buffer/Resume Data Transfer	OFF	OFF
SW2-2	Buffer Enable	ON	ON
SW2-3	Suspend Data Transfer	OFF	OFF
SW2-4	Suspend Data Transfer	ON	ON
SW2-5	Self Test Mode	OFF	OFF
SW2-6	Self Test Mode	OFF	OFF
SW2-7	DTR Control	OFF	OFF
SW2-8	*F/C Protocol ON=ETX, OFF=XON (*8842 Short Jumper J105 between B & C Pins.)	OFF	OFF
SW3-1	Printer Mode	OFF	N/A
SW3-2	Skip Perforation	OFF	
SW3-3	Auto Line Feed	OFF	
SW3-4	Cut Sheet Feeder	ON	
SW3-5	Bit Code Selector	OFF	
SW3-6	Character Set	OFF	
SW3-7	Auto Carriage Return	OFF	
SW3-8	Zero Font Style	OFF	

Table 3-1: Printer Setup for 8842/8843/8844/8845

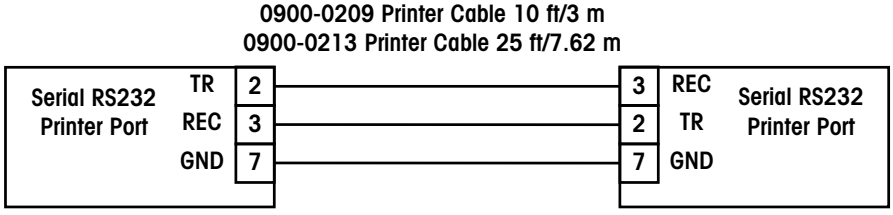


Figure 3-51: Smart*Touch*® Master to 88XX RS232 Printer Cable

Ethernet RF

Introduction

For more information on Symbol® RF, see www.symbol.com, or for Telxon see www.telxon.com, or for Aironet® see www.aironet.com on the world wide web.

The 802.11 Standard for wireless local area networking.

The IEEE 802.11 standard supports transmission in infrared light and two types of radio transmission within the unlicensed 2.4GHz frequency band: Frequency Hopping Spread Spectrum (FHSS) and Direct Sequence Spread Spectrum (DSSS).

The Mercury-PC supports the following technologies:

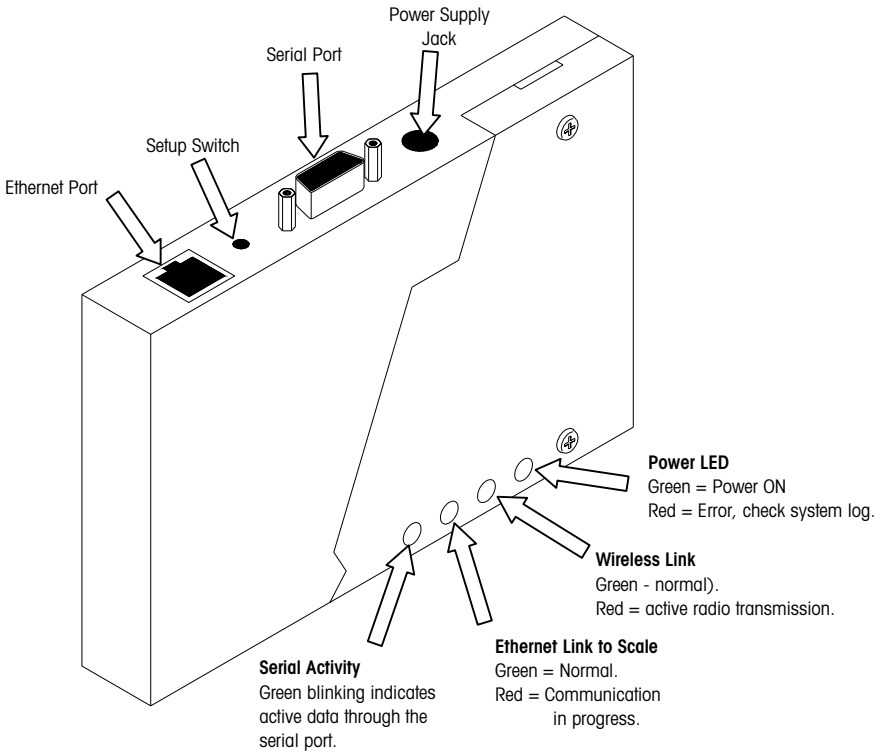
Symbol® Spectrum24 802.11 FH
Symbol® Spectrum24
Aironet™/Telxon 2.4 TMA
Aironet™/Telxon 802.11 DS

Radio Manufacturer's Notes and Recommendations

- Do not touch or move the RF antenna while the unit is transmitting or receiving.
- Keep the radio antenna away from any exposed parts of the body, especially the face or eyes, while transmitting.
- Do not operate a portable transmitter near unshielded blasting caps or in an explosive environment unless it is a type especially qualified for such use.
- Do not operate the radio or attempt to transmit data unless the antenna is connected. If the antenna is not connected, the radio may be damaged.

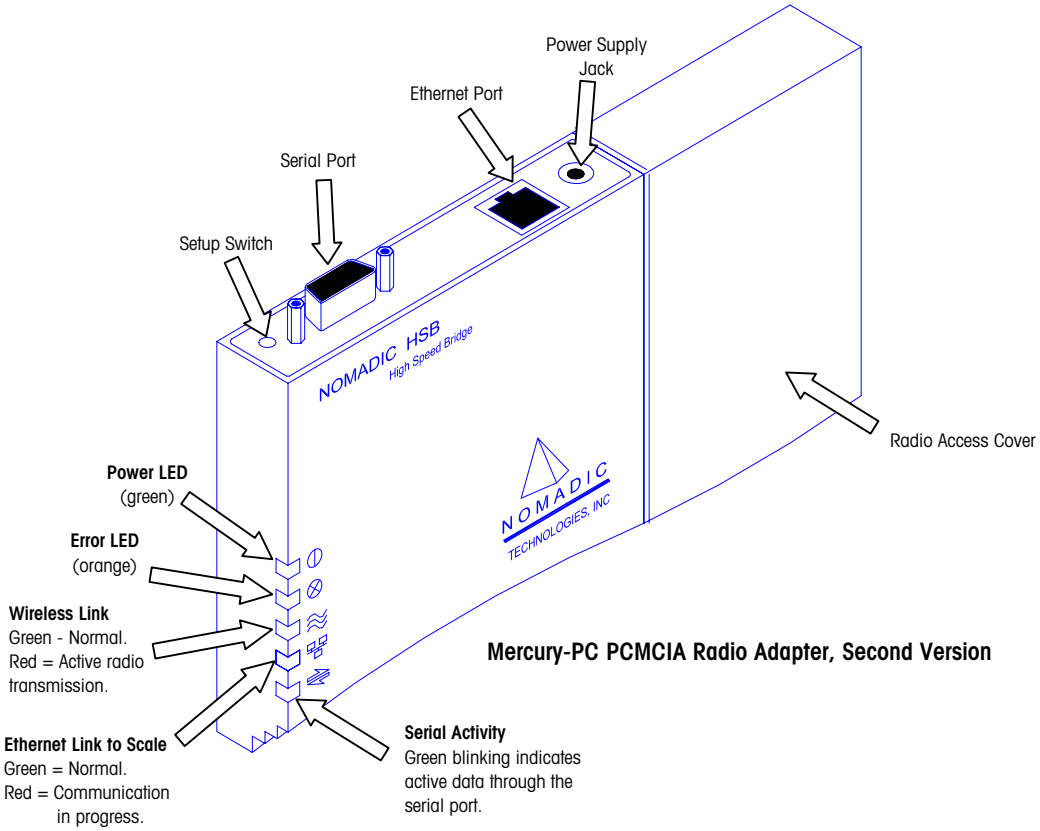
The 8361Ethernet scale is available with the Mercury-PC PCMCIA Ethernet to Wireless Adapter. The Mercury-PC will accept PCMCIA radios, such as Symbol® and Aironet™/Telxon.

The Mercury-PC supports a radio frequency receiver/transmitter that communicates through the store's Access Point via radio waves. The Mercury-PC connects to the scale's Ethernet jack and converts the Ethernet signals to radio signals. The store Access Point then converts the radio signals back into standard Ethernet signals for transmission on the wired network. The Access Point may forward this information to another wireless device or it may be connected to a token ring network.



Mercury-PC PCMCIA Radio Adapter, First Version

Only the Symbol® 802.11 radio supports bridging of multiple Ethernet devices. When the STEM is installed in an Ethernet Client, it will require multiple IP addresses which only the Symbol® supports. Refer to the configuration section for information on the Symbol® 802.11 network. If the radio will not support multiple devices, the STEM must be installed in a TNET satellite.



Mercury-PC PCMCIA Radio Adapter, Second Version

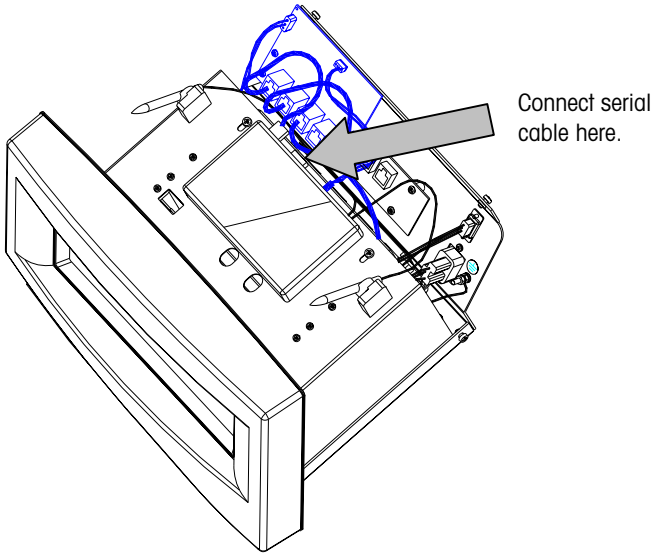
Mercury-PC Setup

When installing an RF scale, you will set up the unit's Ethernet parameters, then set up the Mercury-PC.

The PC RS232 to Mercury-PC cable is a DB9 M-to-F straight through cable. A flat cable, P/N 15138600A is available from **METTLER TOLEDO®** that will allow connection to the serial port without tilting the Mercury-PC adapter.

Serial Cable to Mercury-PC

You will need a PC and a serial cable to set up the Mercury-PC. The Mercury-PC is mounted on RFI Cover accessible when the rear cover is removed from the Model 8361. Turn the power to the scale off before connecting the cable to the Mercury-PC. See the note at the left for cable information.



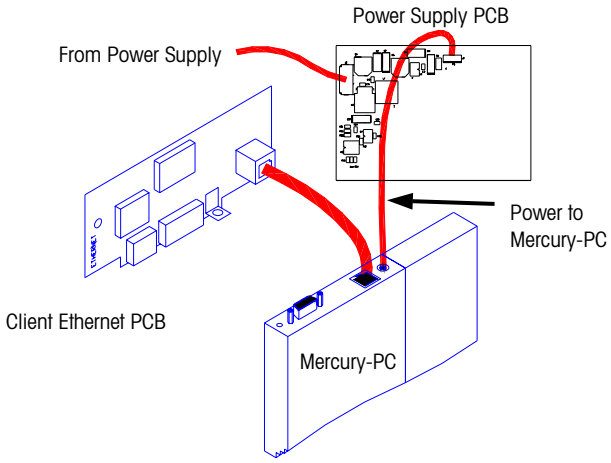
Connecting a Serial Cable to Mercury-PC Module

1 Configure
2 Received Data RD
3 Transmitted Data TD
4 Data Terminal Ready DTR
5 Signal Ground
6 Data Set Ready DSR
7 Request To Send RTS
8 Clear To Send CTS
9 Reset

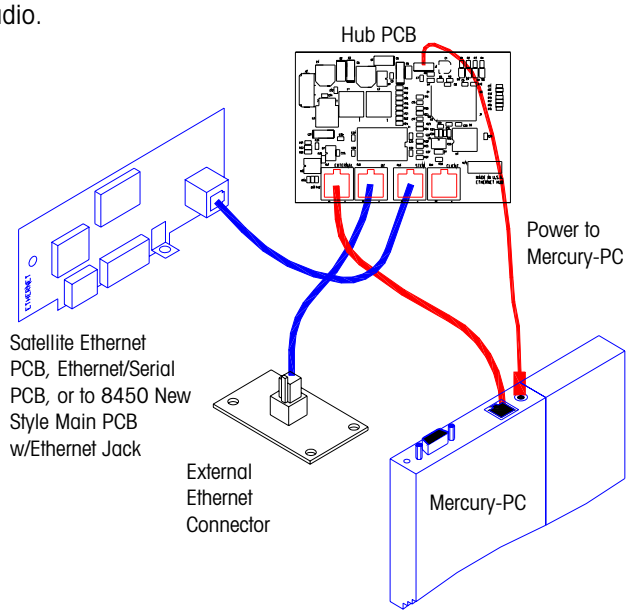
Ethernet Cable Connections

Ethernet Client

Wiring Diagrams for Ethernet Client using a Symbol® or Telxon™ radio.



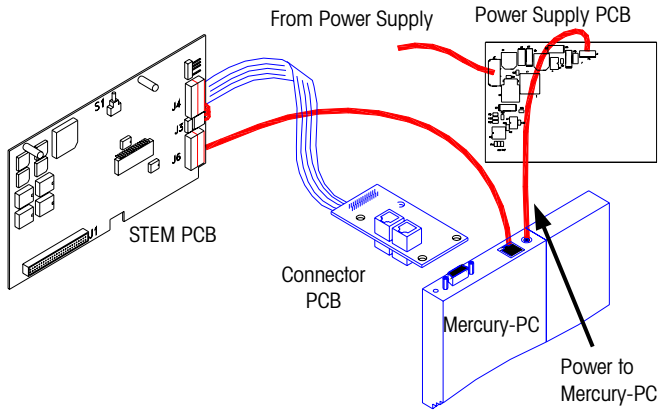
Version 2 – No external Ethernet jack used on factory installed RF on units built after March 2001



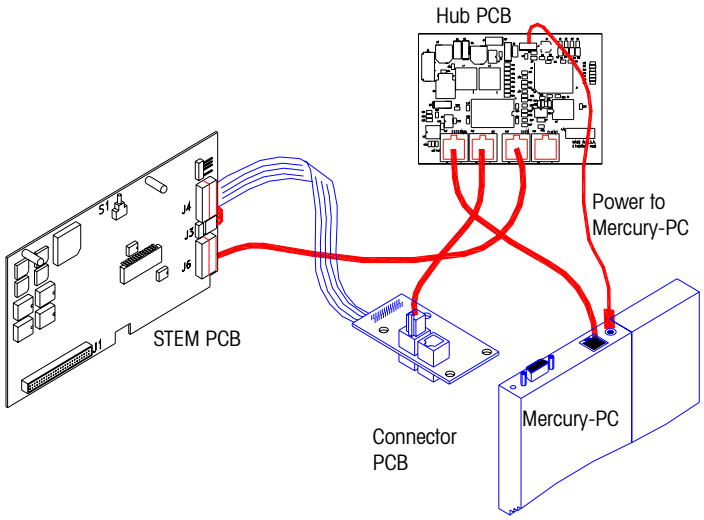
Version 1 – Includes Hub PCB with an external Ethernet jack

STEM (Installed in TNET Satellite)

Wiring diagram for RF kit installed in a STEM with a TNET Satellite using a Symbol® or Telxon™ radio.



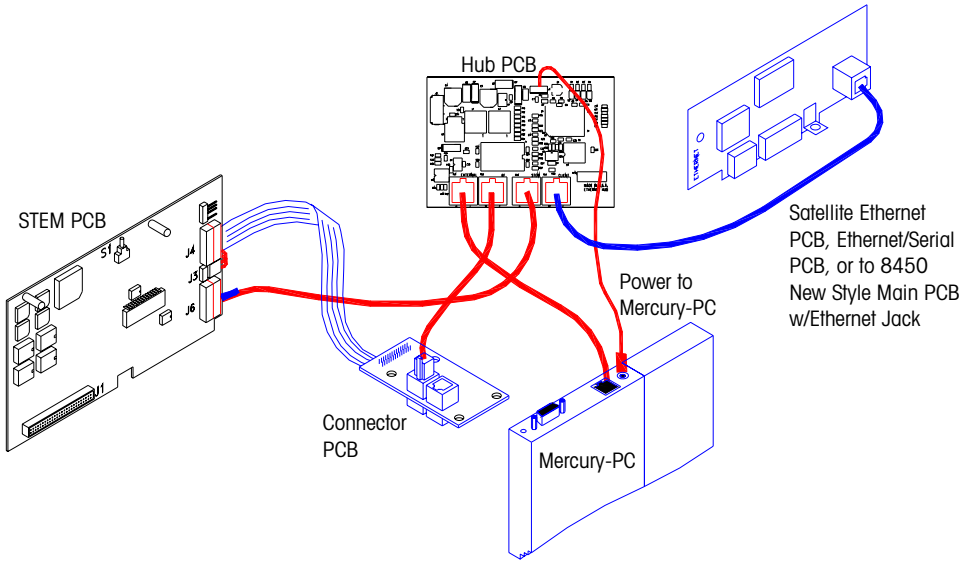
Version 2 – Power Supply PCB and no external Ethernet jack used on factory installed RF on units built after March 2001



Version 1 – Includes Hub PCB with an external Ethernet jack

STEM (Installed in Ethernet Client)

Wiring diagram for STEM installed in an Ethernet Satellite and using a Symbol® radio that supports multiple nodes. In order to use the STEM installed in an Ethernet Satellite, you must use a Symbol® radio that supports bridging of multiple Ethernet devices. Refer to the configuration section for information on the Symbol® 802.11 network. If the radio will not support multiple devices, the STEM must be installed in a TNET satellite.



Mercury-PC Setup Main Menu

Use a communications program such as Windows® HyperTerminal or ProComm® to communicate with the Mercury-PC. The communications protocol for the Mercury-PC is: 9600, N, 8, 1.

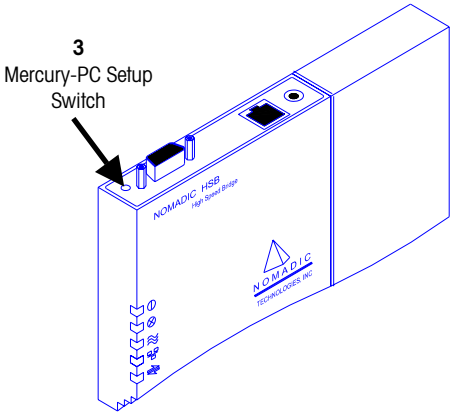
With the cable plugged in, the scale power on, and your communications software running and properly configured (9600, N, 8, 1), use a tool such as a paper clip to press the setup switch in the access hole (see below). The Main Menu should display. If it doesn't, press the up arrow key a few times.

```
Mercury-PC serial number 4267              Nomadic Communications, Inc.
Version 4.1 Build MTS24  EA2  Ethernet HW address 00:40:96:14:70:aa

                              MAIN MENU
                              ---------
                              Resume operation
                              Edit configuration
                              View configuration for capture
                              Reset configuration to default
                              View forwarding database
                              View system event log
                              Clear system event log
                              View RSSI Information
                              Reset the Mercury-PC

Use arrow keys, or Ctrl-N and Ctrl-P to move selector bar.
Press Enter to make selection.
```

Mercury-PC Adapter Setup Screen

Initialize the Mercury-PC

For new scale setup, or anytime a radio is replaced, first select (1) "Reset configuration to default", then select (2) "Reset the Mercury-PC". This will initialize the adapter and configure it for the correct radio. Then (3) press the setup switch again to re-enter the setup menu.



1

2

```
Mercury-PC serial number 4267              Nomadic Communications, Inc.
Version 4.1 Build MTS24  EA2  Ethernet HW address 00:40:96:14:70:aa

                              MAIN MENU
                              ---------
                              Resume operation
                              Edit configuration
                              View configuration for capture
                              Reset configuration to default
                              View forwarding database
                              View system event log
                              Clear system event log
                              View RSSI Information
                              Reset the Mercury-PC

Use arrow keys, or Ctrl-N and Ctrl-P to move selector bar.
Press Enter to make selection.
```

Mercury-PC Configuration

Select "Edit configuration" on the Main Menu.

```
Mercury-PC serial number 4267              Nomadic Communications, Inc.
Version 4.1 Build MTS24  EA2  Ethernet HW address 00:40:96:14:70:aa

                              MAIN MENU
                              ---------
                              Resume operation
                              Edit configuration
                              View configuration for capture
                              Reset configuration to default
                              View forwarding database
                              View system event log
                              Clear system event log
                              View RSSI Information
                              Reset the Mercury-PC

Use arrow keys, or Ctrl-N and Ctrl-P to move selector bar.
Press Enter to make selection.
```

Next, select "Bridged Ethernet (lan0)".

```
Mercury-PC serial number 4267              Nomadic Communications, Inc.
Version 4.1 Build MTS24  EA2  Ethernet HW address 00:40:96:14:70:aa


                               SELECT A FILE
                               -------------
                               Return to Main Menu
                               system
                               RS-232 port (uart0)
                               Bridged Ethernet (lan0)

Use arrow keys, or Ctrl-N and Ctrl-P to move selector bar.
Press Enter to make selection.
```

This is where the various parameters specific to the radio are configured. The following screen shows the setup parameters with an Aironet™ PCMCIA radio installed.

Note for Aironet™/Telxon™ 2500 radios:

The SSID for these radios is a three-byte even hex value in the range 0x000002 to 0xFFFFFE. You cannot use three byte SSIDs and no SSIDs with the low byte equal to 0xFE (ex 0x12FE).

(Example: 254, 510, 766, 1022)

0x = Hex
FF is a byte
Even bytes end in 2, 4, 6, 8, A, C, or E

```
[hardware]
# If you are using a PC4500, the SSID may be either a string of up to
# 32 characters, or it may be a hex number. If you are using a
# PC2500, it must be an even hex number
SSID1 = 0x8
node name = Mercury-PC
# A MAC address can be specified as in the following example:
# mac address = 00a0cc2c2480
mac address = detect save
operating mode = ess

[rmp]
ethertype = 0x4e43

[ip]
ip address = 10.10.10.128
netmask = 255.255.255.0
broadcast = automatic
route = automatic
gateway = none

 File: lan0          Line #: 1
^P: up  ^N: down  ^B: back  ^F: forward  ^W: write file  ^X: exit w/out saving
```

Bridged Ethernet Setup Screen for Aironet™/Telxon

Under [hardware], the SSID1 is the wireless network system ID. This must match the system ID of the Access Point. The Service Set Identifier (SSID) controls access to a given wireless network. This value MUST match the SSID of any/all Access Points with which you will communicate. If the value does not match, access to the system is not granted. The SSID can be up to 32 characters (case sensitive).

The "node name" is registered at the Access Point. The station name is displayed in the table of connected devices on the Access Point. It provides a logical name to determine which machines are connected without having to memorize every MAC address. The name can be up to 16 characters.

The "ip address" and "netmask" are optional and are used only for remote management of the wireless bridge through the network using a Telnet session. Press Control-W to save and exit the screen or Control-X to exit without saving changes. The following screen shows the setup parameters with a Symbol® PCMCIA radio installed.

Note: On a Symbol® 802.11 network, a single node is supported when "dsmu = no". To support bridging of multiple Ethernet devices, change to "dsmu = yes" in the screen to the right. In the Access Point, you WLAP mode must be enabled.

To use both antennas, you must add the line "diversity = yes" as shown to the right, which may increase the distance that scale can be located away from the Access Point.

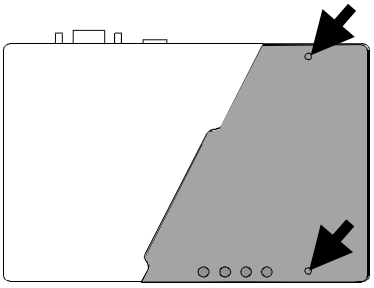
```
[hardware]
network id = 101
mac address = detect save
# station or microap
radio mode = station
dsmu = no
transmit rate = 1 2
diversity = yes

[rmp]
ethertype = 0x4e43

[ip]
ip address = 10.10.10.128
netmask = 255.255.255.0
broadcast = automatic
route = automatic
gateway = none

File: lan0          Line #: 1
 ^P: up  ^N: down  ^B: back  ^F: forward  ^W: write file  ^X: exit w/out saving
```

Bridged Ethernet Setup Screen for Symbol® Radio

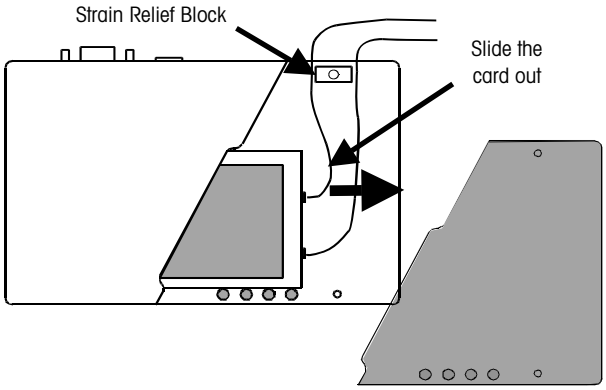
Changing the PCMCIA Radio

First Version Mercury-PC

The first version of the Mercury-PC module used a metal housing and external antennas. The radio in the Mercury-PC adapter is a PCMCIA card. To change the radio, first remove the two cover screws (right) and then remove the cover (see below).



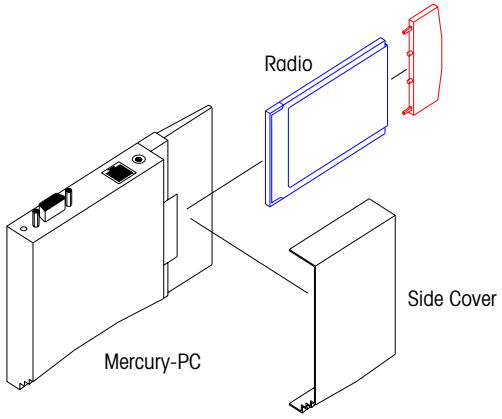
Next, slide the PCMCIA card out from the adapter. Disconnect the antenna leads from the card. Reconnect the antenna leads to the new radio card, and then slide the new radio card in the adapter. Push the card in until you can feel the card plug into the receptacle. Route the antenna leads out the top of the adapter and on top of the strain relief block so they are clamped in place when the cover is installed (see below).



Replace the adapter cover. See the previous section "Mercury-PC PCMCIA EAB Setup" to initialize and configure the new radio.

Second Version Mercury-PC

The second version of the Mercury-PC module uses a molded plastic housing and an internal antenna that connects directly to the radio. The side cover of the Mercury-PC Module snaps off. With the cover removed, slide the radio and antenna into the module until it is securely seated in the connector. Snap the cover back onto the module.



Installing a radio and antenna in the Second version Mercury-PC

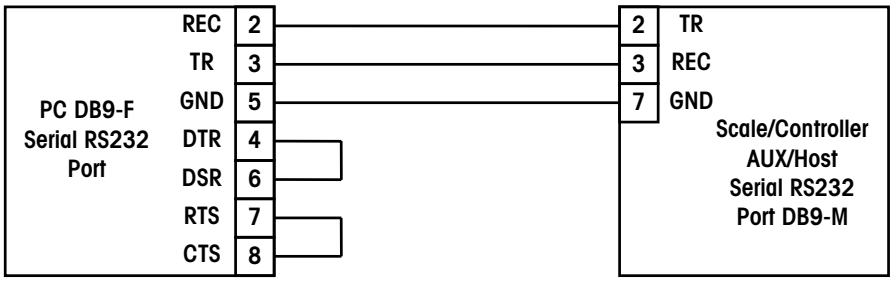
4 PC and Network Interfacing

DataBack Backup and Restore

A PC running the METTLER TOLEDO® program, DataBack (Version 4.1 or later) can be used to upload or download data to and from the Model 8361. New scales can be easily set up by using files backed up from other Model 8361 (compatible) units.

Factory cables are shown below using a 25-pin or a 9-pin PC Serial Port to the 9-pin connector at the scale. (Note: Cables are the same as used for Models 355, 8360, 8361, 8422, 8423, 8305, 8450, 8460.)

0900-0285 (*13816200A) Cable, PC DB9 to Scale 10 ft/3 m
0900-0297 (*14102600A) Cable, PC DB9 to Scale 25 ft/7.62 m



0900-0286 (*13816300A) Cable, PC DB25 to Scale 10 ft/3 m
0900-0298 (*14102800A) Cable, PC DB25 to Scale 25 ft/7.62 m

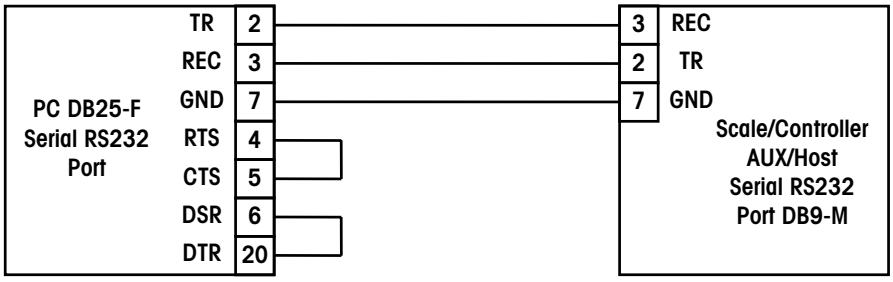


Figure 4-1: PC RS232 to Host/AUX Port Cables

Satellite/Client Backup/Restore

Conversion Notes:

Model 8460 to Model 8360/8361/8461/8450:

Only the custom label formats and programmed text from the Model 8460 Labels/Cassette data can be converted for use with the Model 8461. This file must be converted using a conversion program called **LBL2MM_1.EXE** that generates the Model 8360/8361/8450/8461 label formats.

Note: Databack for Windows® can use either a direct RS232 serial connection or be run on an Ethernet network to backup or restore files.

Using DataBack (Version 4.1 or later) or Databack for Windows®, four categories of satellite data can be backed up or restored:

ALL	Includes all data sets below. ***Use this only when backing up and restoring to similar Model 8461 units.*** Not compatible with any other scale types. It is recommended to use individual categories to provide compatibility with other scale types.
LABEL FORMATS	Includes custom label formats and programmable text. Compatible with 8450/8360. Model 8460 formats must be converted. See notes at left.
LABEL SIZE/STYLES	Includes information on all label sizes, format #'s, width, length, etc. Not compatible with other types.
SCALE PRESETS	Includes only the user defined preset keys. Compatible with Model 8460/8360.
MISCELLANEOUS	Includes Grade Table, Action Code Table, PLU Settings, TNET Protocol, Department ID and records, Marquee messages, Accumulator Setup, and other Softswitch Settings. Not compatible with any other scale types.

To backup data using a serial connection, connect the data cable to the PC's serial port and to the Model 8361 **AUX** Port on the rear of the unit (see below). Start DataBack. The AUX port must be configured to match the settings in DataBack. In DataBack, select **BACKUP** at the Main Menu, then **8360/8361**. Next, select the type of backup. Make your selection, type in the file name and press ENTER. Press any key to continue. To restore data, select **RESTORE** from the DataBack menu, select scale type **8360/8361**, type in the file name, then follow the same steps. In DataBack for Windows®, select the "Scale Type", the "Data Type", the "File Specification", then click on the "Restore" or "Backup" buttons (see below). When using an Ethernet TCP/IP Network connection, the PC can be located anywhere on the network. Enter the "IP Address" to match the settings in the Ethernet Client. Leave the "Port Number" as 2305, and enter the host address of the scale into the "Scale Addr" field.

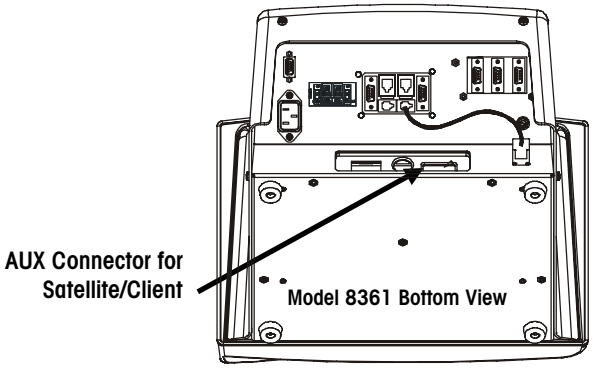
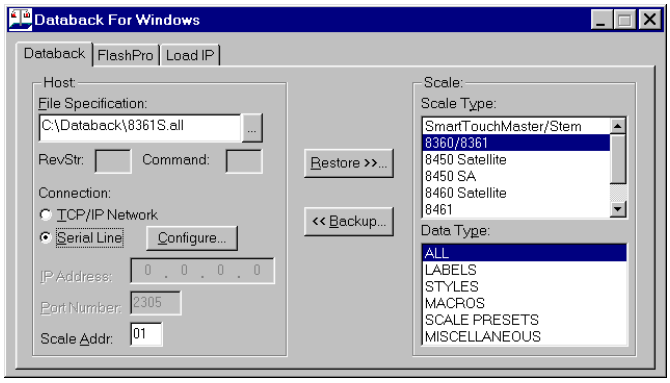


Figure 4-2: AUX Connector Jack

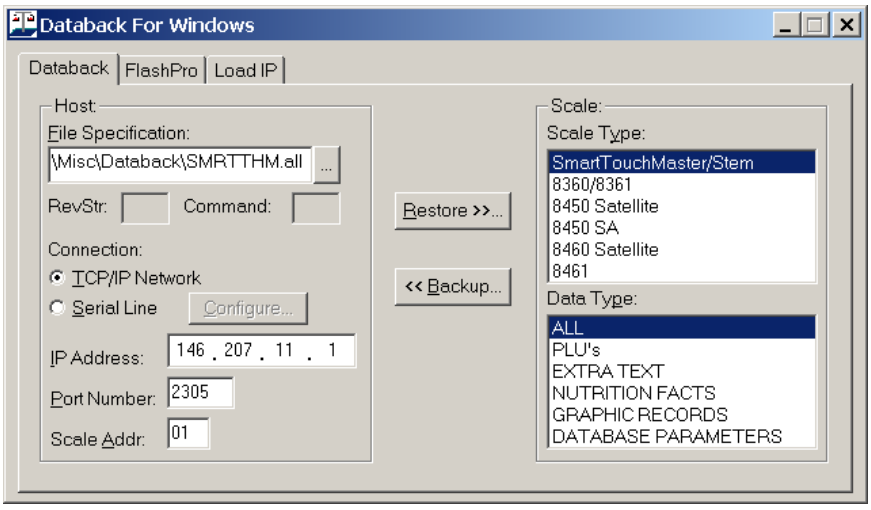


Databack for Windows® Screen

Backup/Restore SmartTouch® Master

Using DataBack (Version 4.1 or later) or Databack for Windows® the following categories can be backed up or restored:

PLU	Includes only the PLU data files.
EXTRA TEXT	Includes only the Extra Text File.
NUTRITION FACTS	Includes only the Nutrition Text.
GRAPHICS	Includes only Graphics files.
MISCELLANEOUS	Includes Cutting test info, Accumulator Names, Host ID, Weight Increment, Currency Increment, Tare Limit, Currency DP, Currency Symbol, Host Protocol, Master Editor Password, Department Table, Store Record, Grade Table, Group Table, Message Table, Operator Totals Table, Operator Records Table, Item Number Duplication status, Printer Setup, Serial Device Setup.
ALL	Includes PLU, Extra Text, Nutritional Text, Graphics, and Miscellaneous.



To backup data from a **SmartTouch®** Master using a serial cable, connect the data cable end marked PC to the correct PC serial port and the end marked SCALE to the **Master Host Port** on the Connector PCB. If connecting using Ethernet, connect your PC to a hub on the network or use a crossover patch cable to connect direct to the STEM Ethernet jack. Start up DataBack and select **BACKUP** and **SmartTouch Master** from the menu to backup, or **RESTORE** and **SmartTouch Master** to restore files to the **SmartTouch®** Master. Click on the connection type TCP/IP or Serial Line. Enter the Scale Address and the IP Address for an Ethernet connection. Leave the Port at 2305.

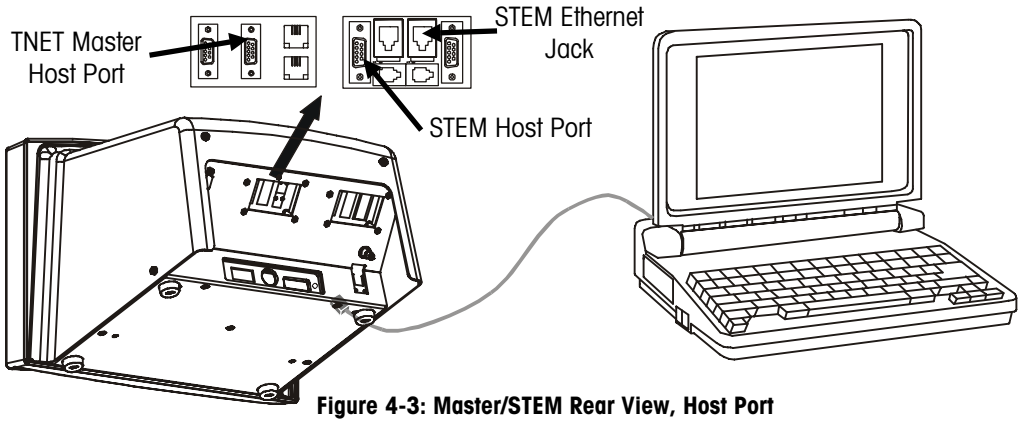
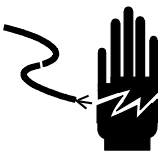


Figure 4-3: Master/STEM Rear View, Host Port

Flashing Software



WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

EEPROM - Electrically Erasable Programmable Read Only Memory.

Note: setup data is erased when flashing software!

The Operating System Software for the Satellite is stored in Flash EEPROM's on the Main PCB. The Operating System Software for the **Smart*Touch*®** Master is stored in Flash EEPROM's on the Master CPU PCB. The operating system software is downloaded through the unit's RS232 serial port from a PC using a downloader program called FLASHPRO (available as a standalone program or in Databack for Windows®). The cables and components are the same as used with DataBack.

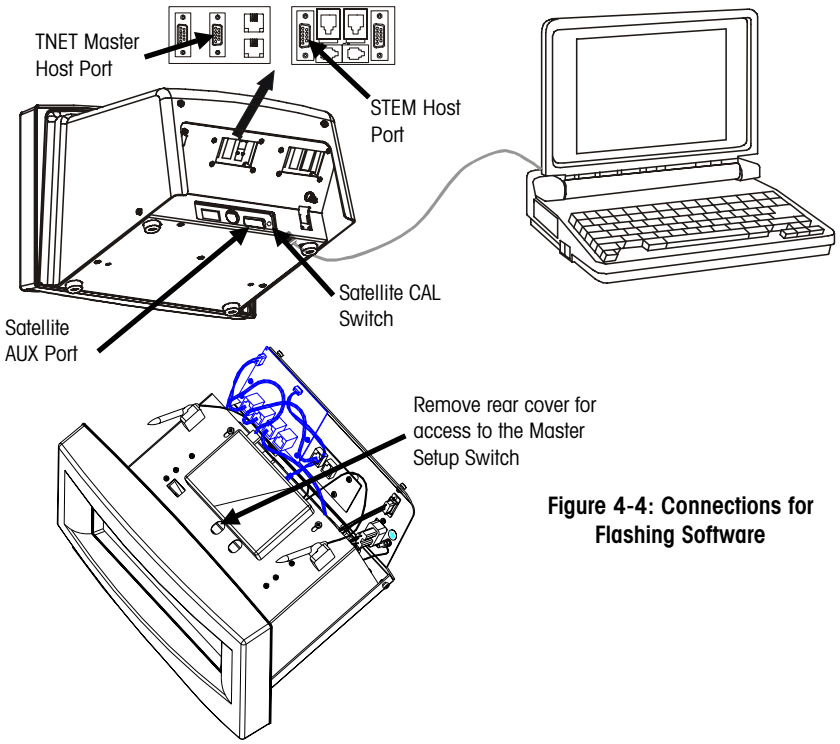
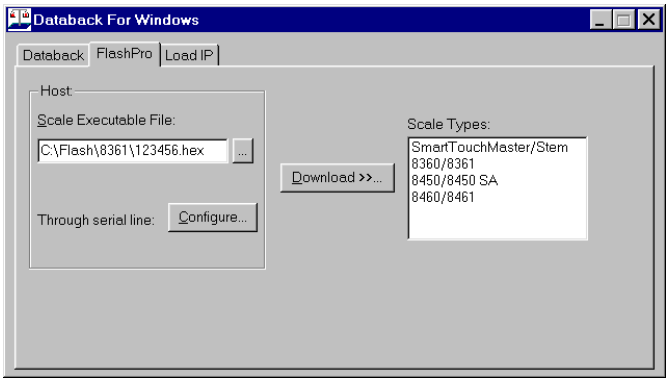


Figure 4-4: Connections for Flashing Software



Databack for Windows®

The software distribution files may be compressed. If the software has a ".EXE" extension, execute the file (double click in Windows® or type the file name in DOS) to uncompress the software files. New files will be created, as they are uncompressed on

your PC. The new files will be the software files. The new files can then be used by FLASHPRO or Databack for Windows®.

FLASHPRO.EXE INSTRUCTIONS

If a batch file is shipped with the software, it may contain the following command line parameters set up for COM1:

flashpro -t*filename.hex* -B115.2 -COM1 -PE -D7 -S2

Replace ***filename.hex*** with the software file name.

(Example: FLASHPRO -t123456R.hex)

FLASHPRO uses the PC's COM1 RS232 Serial Port as a default. When using the PC's COM2 Serial Port, the "-COM1" parameter must be changed to "-COM2". Type FLASHPRO with no parameters to display a help screen.

To download the software:

1. Turn the unit's power switch OFF.
2. Connect the RS232 cable. Plug the end marked PC to the PC's serial port and the other end to the **AUX** Port to flash Satellite or Client Software, or to the **Master Host Port** to flash TNET Master or STEM (Ethernet Master) software.
3. Press and hold the ***CAL*** Switch (satellite/client) or the Master Setup Switch (TNET Master and STEM).
4. Turn the unit's power switch ON.
5. Release the switch when the unit's display shows **Download Program** (satellite/client) or after 4 seconds on a master.
6. Type in the FLASHPRO command line on the PC and press ENTER. If you get an error message "***Bad command or file name error***", you may have typed the file name incorrectly or the file FLASHPRO.EXE is not in your PC's path or current directory. If "UART Error" displays, make sure the cable is connected to the correct Serial Port on the PC and the correct cable is used. Flashpro will display **N** indicating Non-Acknowledgement indicating it did not receive a response from the device. Some N's are normal during transmissions. A large number of N's indicates a communication problem.
7. FLASHPRO will display **A**'s during the download process, (Acknowledgment). When the download is complete, FLASHPRO will display the message "File Transfer Successful".

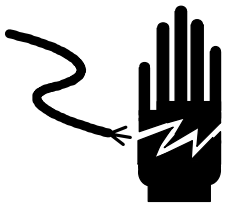
NOTE: Always reset to factory defaults after flashing the Satellite software or initialize the master after flashing master software.

NOTE: Always reset print head resistance and print speed/power after flashing the satellite software.

If you are experiencing problems downloading the software, check the following:

- If you get an error message "***Bad command or file name error***", you may have typed the file name incorrectly or the file FLASHPRO.EXE is not in your PC's path or current directory.
- If "UART Error" displays, make sure the cable is connected to the correct Serial Port on the PC and the correct cable is used. COM1 is used as a default. If you are using COM2, you must add the parameter "-COM2" to the command line.
- Flashpro will display an **N** indicating Non-Acknowledgement (it did not receive a response from the device) if any errors are encountered. Some N's are normal during transmissions. A large number of N's indicates a communication problem. This could be caused by a defective cable or serial port. Also, older PC's may not have a high-speed serial port (UART) that could cause this type of error.
- If the software will not download, the Main PCB or Master CPU could be defective. Replace and retry the download.

TNET Network Installation



WARNING

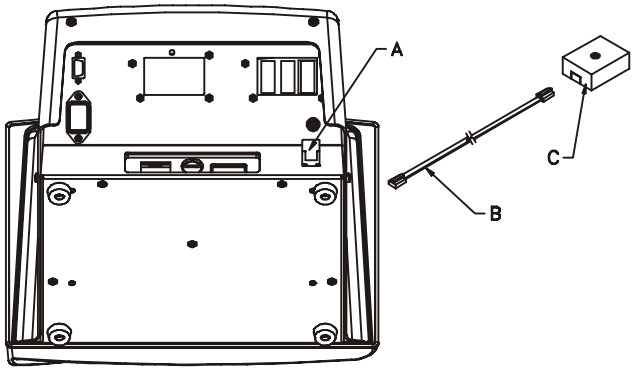
ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

TNET Satellite

The TNET satellite must be connected to a **Smart*Touch*®** TNET Master or STEM to access the master database. When a PLU number is called, it is retrieved from the master database and added to a local backup PLU table. On power-up, the backup table, action code table, grade table, and department configuration is updated. If the master is off-line, satellites can operate with backup information until the master goes back on-line.

The TNET network connects all the satellite scales to the master scale. Each satellite is shipped with a modular phone jack box and a 25 ft (7.62 m) communication cable that connects the box to the TNET connector on the bottom of the scale, as shown below. The 25-ft (7.62 m) communication cable has a 4-position modular phone plug on one end, and a 6-position modular plug on the other. Connect the 4-position end to the TNET jack, and the 6-position end to the phone jack.

The total data-cable length of the network, including the main data cable and 25 ft (7.62 m) scale drop cables is limited to 1500 feet (457 meters).



A - Satellite TNET Jack
B - 12716500A Phone Cable
C - 12716300A Phone Jack

Figure 4-5: Satellite TNET Connector (Bottom View)

Smart*Touch*® Master TNET Network Connections

The **Smart*Touch*®** TNET Master connects to the network using the 25-ft/7.62 m communication cable and phone jack (shipped with each unit). A jumper cable connects the TNET satellite TNET jack to a connector board from the master. The network cable then connects to the spare jack, as shown below.

The STEM (**Smart*Touch*®** Ethernet Master) can support up to 25 TNET Satellites, in addition to the Ethernet Clients. The TNET jacks on the STEM Connector PCB are shown below. Connection can be made on either jack. If the STEM is installed in a TNET Satellite, it will also have the jumper cable from the Satellite TNET jack to the connector board.

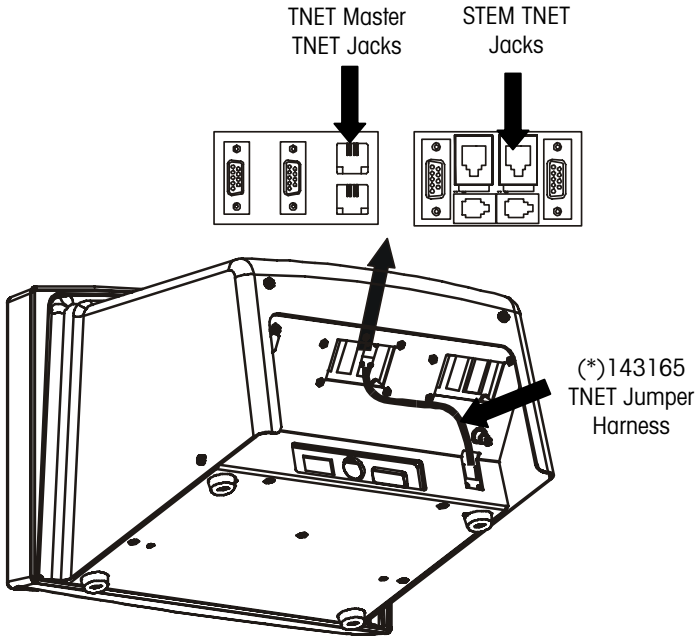


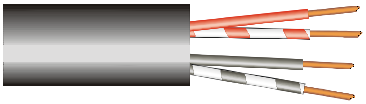
Figure 4-6: Smart*Touch*® Master TNET Connectors

TNET Hardware

The maximum cable length of the TNET network, which includes the main data cable and all 25 ft (7.62 m) communication cables, is limited to 1500 feet (457 meters). Use only approved or equivalent UTP (unshielded twisted pair) cable. The use of unapproved cable may result in data communications errors.

If the cable will be routed through a plenum area or in ceilings, check the local electrical/fire codes. Special UTP non-flammable/non-smoking plenum-cable may be required.

Table 4-1 lists the METTLER TOLEDO® wiring specifications.



Two-Pair UTP (Unshielded Twisted Pair) Category 2 (or higher), 22-24 Gauge, Solid Core Cable is required for the master/satellite network.

Material	Approved Vendors	Specifications
Phone jack	• METTLER TOLEDO P/N (*)12716300A • Allen Tel. Prod. #AT468-4 (or equivalent)	Wall mount telephone jack with screw terminals and one RJ-45 modular jack.
Terminating Resistor	METTLER TOLEDO P/N (*)12839300A. or equivalent	1/4 Watt, Metal Film, Tolerance ±1%.
UTP Data Cable	Belden 1227A AT&T 1005 002A W1000	Solid-Core (22-24 gauge), Two-Pair UTP (Unshielded Twisted Pair) EIA Category 2 or higher or UTP Telephone Cable. • Category 2 or higher • Maximum 1500 feet (457 m) cable length (including drops) • 22-24 AWG Solid Core • 2-Pair UTP (Unshielded Twisted Pair) • N.E.C. type CM • Nominal Capacitance **16-18** pf/ft **max**.

Table 4-1: TNET Hardware

TNET Wiring

The maximum cable length, including the main data cable and 25 ft (7.62 m) scale drop cables is limited to 1500 feet (457 meters).

Only one twisted pair will be used. The other pair is not connected and can be used as a spare.

The main data cable and must be run so it is located within 25 ft (7.62 m) of each scale on the network. Once the cable is routed, a modular phone jack (P\N 12716300A) must be attached to the main data cable at each unit's location. The phone jack must be located within 25 ft (7.62 m) of the unit to allow connecting the 25 ft (7.62 m) communication cable between the phone jack and the scale. Each scale is shipped with a 25-ft (7.62 m) communication cable (P/N 12716500A) that connects to the phone jack. Refer to the illustration below that gives an example of the scale network wiring in detail. ***The main data line must be terminated at the ends by connecting the supplied 113-ohm resister (P/N 12839300A) between the Green and Red terminals in the phone jacks. The terminating resistors are supplied with each master scale. Use only one twisted pair to connect to the Green and Red terminals in the phone jack. Do not use a wire from each pair.***

NOTE 1: The 25-ft (7.62 m) Communication Cable, P/N 12716500A, and the Phone Jack, P/N 12716300A, are supplied with each scale. The four-position modular phone connector plugs in the scale TNET connector, and the six-position modular phone connector plugs into the phone jack.

NOTE 2: The master can be installed at any location on the network. In this example, the Master is installed near the middle of the main cable. When the cable length approaches near maximum, it is recommended the master be located near the middle of the network. Up to 24 satellites are supported.

NOTE 3: All phone jacks must be installed on the main data line which runs to each location. This main data line must not branch off into multiple sub-networks from one phone jack. The total cable length, including the 25-ft (7.62 m) scale communication cables must not exceed 1500 feet (457 meters). The cable must meet local building code and NFPA requirements.

NOTE 4: The 12839300A 113 ohm Terminating Resistor MUST BE INSTALLED BETWEEN THE GREEN AND RED TERMINALS OF THE PHONE JACK AT BOTH ENDS OF THE MAIN DATA CABLE. Trim any excess cable beyond the last connection.

NOTE 5: Use only one twisted pair to make the connections. Leave the other twisted pair for a spare. Do not use one wire from each twisted pair.

(*) = May have letter prefix.

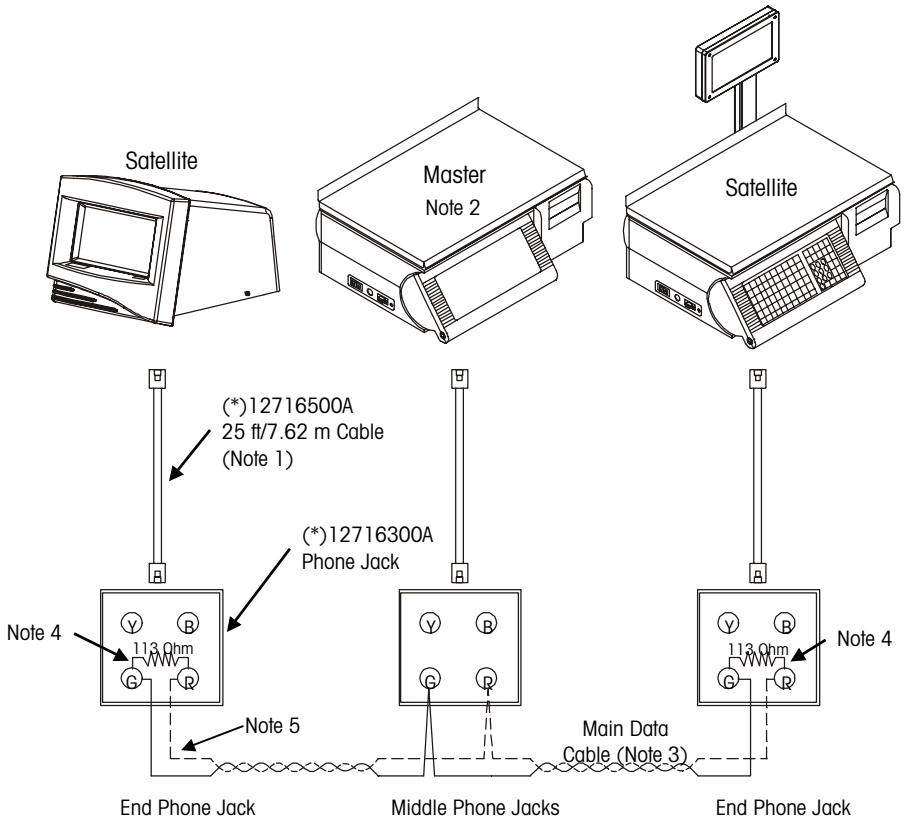


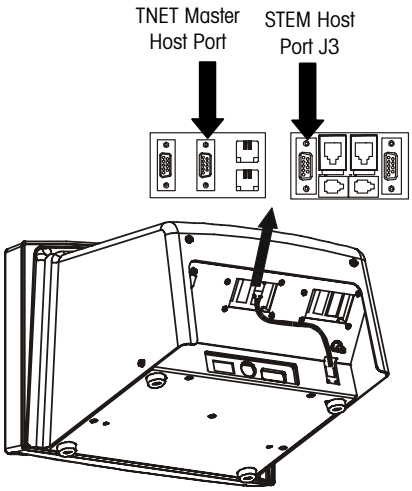
Figure 4-7: TNET Network Wiring

Connecting a SmartTouch® Master to a PC

The **SmartTouch®** Master has two types of interfaces available on the Master Host Port: RS232 and RS422. The interface is selected simply by connecting to the appropriate pins.

RS232 Interface

When using RS232, a single master can be connected to a PC RS232 serial port for distances up to 100 feet (30 meters). The illustration below shows a typical RS232 connection to a PC serial-port.



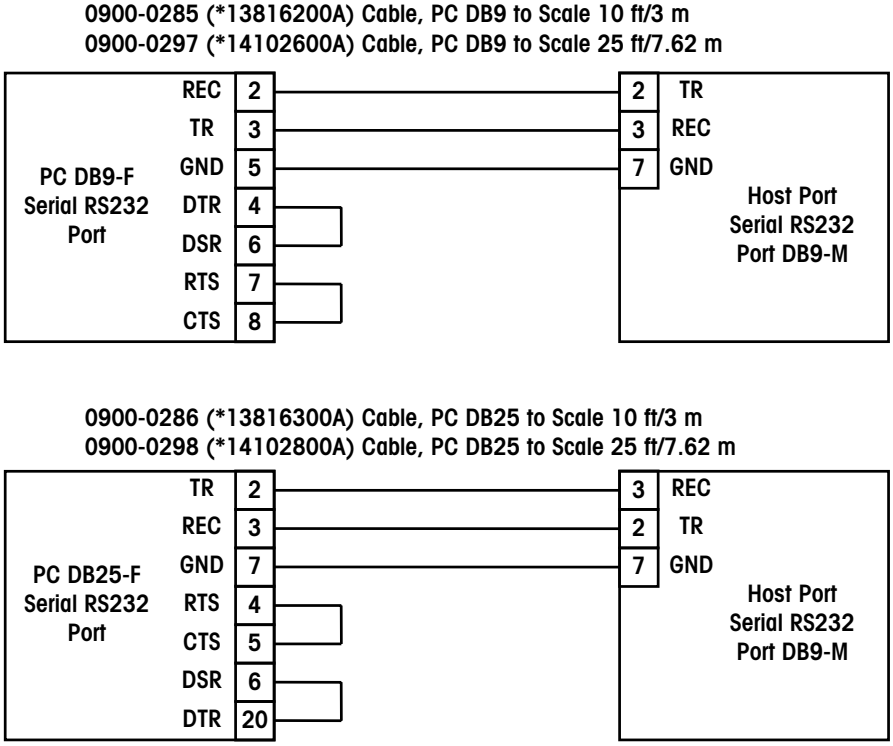


Figure 4-8: SmartTouch® Master to PC RS232 Serial Port Wiring

RS422 Interface

When the cable length will exceed 100 feet, or if multi-drop capability is needed (for connecting more than one scale to the network), the RS422 interface must be used. ***The maximum cable length for RS422 is 1200 feet (366 meters).*** A wiring diagram is shown in below using the METTLER TOLEDO® RS232 to RS422 Converter.

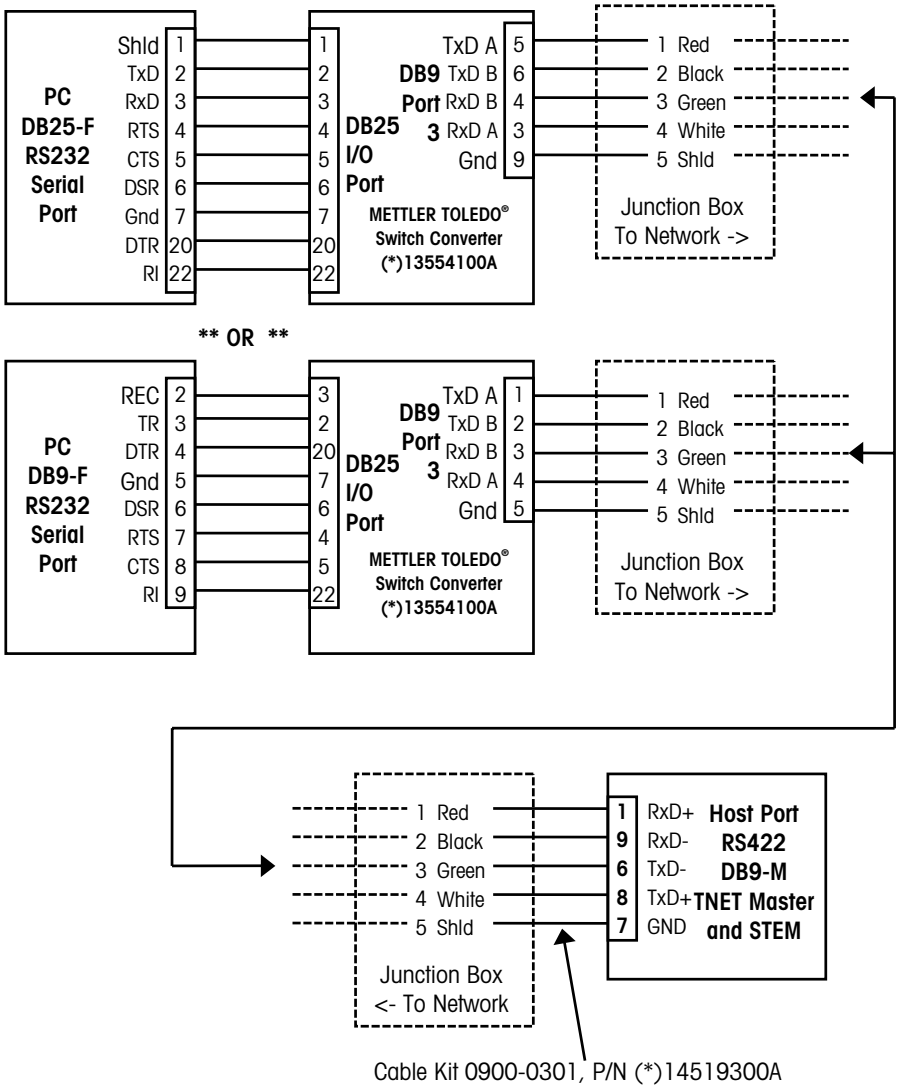
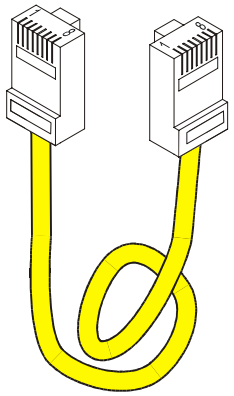


Figure 4-9: Smart*Touch*® Master RS422 to METTLER TOLEDO® Converter Wiring

Ethernet Network Cabling Systems

METTLER TOLEDO® Ethernet cabling specifications follow established industry standards. Additional information on Ethernet networks can be found on the Internet, bookstores, or at most libraries.

Devices can be purchased that can connect segments of LANs that use different cabling standards (i.e. 10BASE2 to 10BASE-T, etc.) to extend the range of the network. 10BASE-T Hubs can also be purchased with a BNC connector to connect the hubs using 10BASE2 or 10BASE5. METTLER TOLEDO® Ethernet Clients and the STEM require UTP **10BASE-T** cables, **Category 5** (CAT 5) or higher, wired in a **Star topology**. Each node on the 10BASE-T network has its own cable that connects to a common hub. The cable from the node to the hub (segment) can be up to 100 meters (328 feet) in length. The hub serves as a central switching station that controls the incoming and outgoing signals. When using star topology if a station goes down it does not affect the rest of the network. Typically an RJ45 connector is connected to UTP cabling and is run straight from the hub to the device on the network.



RJ-45 Connectors used on UTP 10BASE-T networks. METTLER TOLEDO® Ethernet Scales and the STEM use this connector.

The ***10*** is for 10 Megabits per second (Mbps) operation, ***Base*** is for baseband operation, and ***T*** is for the twisted pair cable used for the network. 10BASE-T uses unshielded twisted pair (UTP) cabling. METTLER TOLEDO® recommends using **Category 5** (sometimes referred to as CAT 5) or higher wiring for the scale systems. Each node on the network has its own cable that connects to a common hub. The cable from the node (Scale, PC, or other device) to the hub can be up to 100 meters (328 feet) in length.

The following basic rules apply to a 10BASE-T network.

- Maximum length per 10BASE-T segment is 100 meters or 328 feet.
- Maximum of two devices per segment; one is the station and the other is the hub.
- Maximum of four hubs can be connected without using a bridge or switch. (Consult the hub vendor for their specific specifications.)
- Star topology.
- 10Base-T Hubs can connect to fiber optic 10BASE-FL or to 10BASE-2 or 10BASe-5 coax networks that can be used to extend the distance of the network. Special hubs will be needed for this application.
- UTP (Unshielded Twisted Pair) cable. Category 5 or higher is recommended. UTP cabling is not recommended for areas with high electromagnetic or radio frequency interference (EMI/RFI).

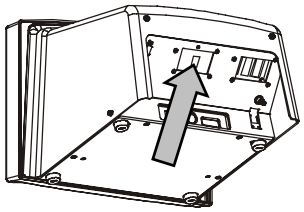
Ethernet Connections

The Ethernet jacks on all METTLER TOLEDO® scales use standard 10BASE-T Ethernet Wiring configurations. This wiring configuration allows the use of standard Ethernet straight-through patch cables from a hub to the client. The Ethernet connector locations are shown below.

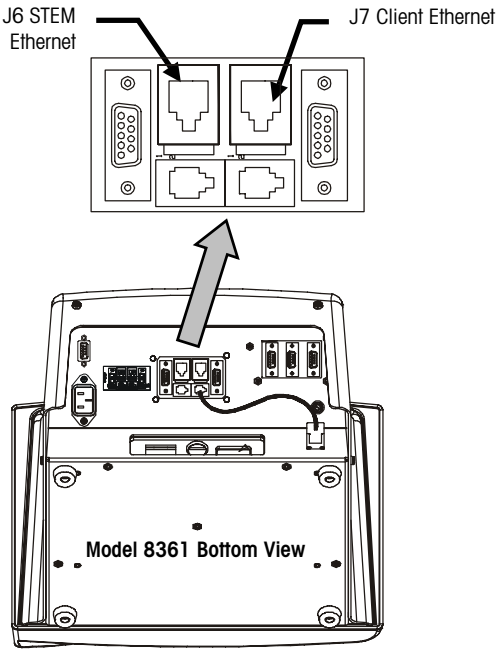
Ethernet RJ45
10 Base-T Connector

Pin 1 - TD+
Pin 2 - TD-
Pin 3 - RD+
Pin 6 - RD-

Model 8361Satellite Rear View



Satellite Ethernet Connector



STEM Bottom View, Ethernet Connector

Patch Cables

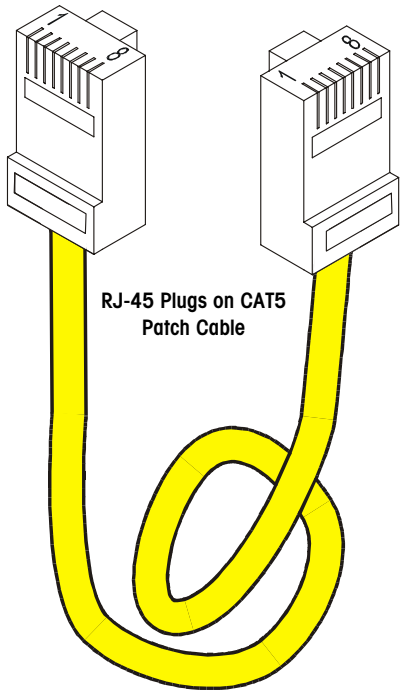
10BASE-T Straight-Through Patch Cable

Patch cables connect devices to hubs. METTLER TOLEDO® Ethernet Clients require a CAT5 (Category 5) 10BASE-T UTP Straight-Through Patch Cable conforming to the EIA standard 568A or 568B. The only difference between 568A and 568B is the color code positions (green and orange wires are swapped). It is best not to mix 568A and 568B cables in a system to avoid confusion with the color codes (however, complete cables of both types will interchange). 10BASE-T segments are limited to 328 feet (100 m). The CAT5 Straight-Through Patch Cable has four pairs of wires connecting to the same pins on both ends of an RJ-45 connector. Pairs 2 and 3 are used for the 10BASE-T signals, as shown below.

Pin connections for 568A and 568B cables.

	Plug A	Color Code 568A	Color Code 568B	Plug B
Pair 3	1 - TD+	White/Green	White/Orange	1 - TD+
	2 - TD-	Green	Orange	2 - TD-
Pair 2	3 - RD+	White/Orange	White/Green	3 - RD+
Pair 1	4 - Not Used	Blue	Blue	4 - Not Used
	5 - Not Used	White/Blue	White/Blue	5 - Not Used
Pair 2	6 - RD-	Orange	Green	6 - RD-
Pair 4	7 - Not Used	White/Brown	White/Brown	7 - Not Used
	8 - Not Used	Brown	Brown	8 - Not Used

Straight Through 10BASE-T Patch Cable

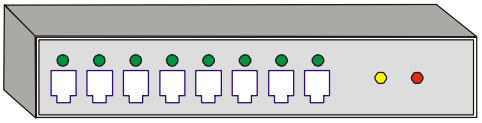


Patch Cable for 10BASE-T
RJ-45 Plugs on CAT 5 Cable

Hubs

Ethernet is easily expandable with devices that provide multiple Ethernet ports. These devices are known as "hubs" since they provide the central portion, or hub, of a network system. Hubs can be connected to each other extending the network. Check with the Hub manufacturer or the documentation shipped with the hub to determine the maximum number of hubs that can be connected together. Depending on the manufacturer, up to four hubs can be connected. To further extend the size or distance of a network, a switch or repeater can also be purchased.

Hubs can be purchased with five, eight, and sixteen or more ports. Hubs can also be purchased that can connect a 10BASE-T network to other cable types, such as 10BASE2. A vendor, Network Administrator, or System Engineer should be consulted to determine the best configuration for your application.



Example 8-Port 10BASE-T Hub (RJ-45 Connectors)

TCP/IP

TCP/IP is used for communication on an Ethernet Network between a host and client, such as a PC or METTLER TOLEDO® Ethernet scale.

TCP/IP is software that provides a method for transferring data from one machine to another. **T**ransmission **C**ontrol **P**rotocol (the TCP part of TCP/IP) is a communications protocol that provides reliable data transfer. Data is transmitted by assembling the data into packets (smaller chunks of data). **I**nternet **P**rotocol (IP) is responsible for routing and moving the packets of data across networks. IP uses a set of unique addresses for every device on the network to determine routing and destinations. When packets are received, TCP reassembles the packets into the original data form.

Ethernet Scale Network

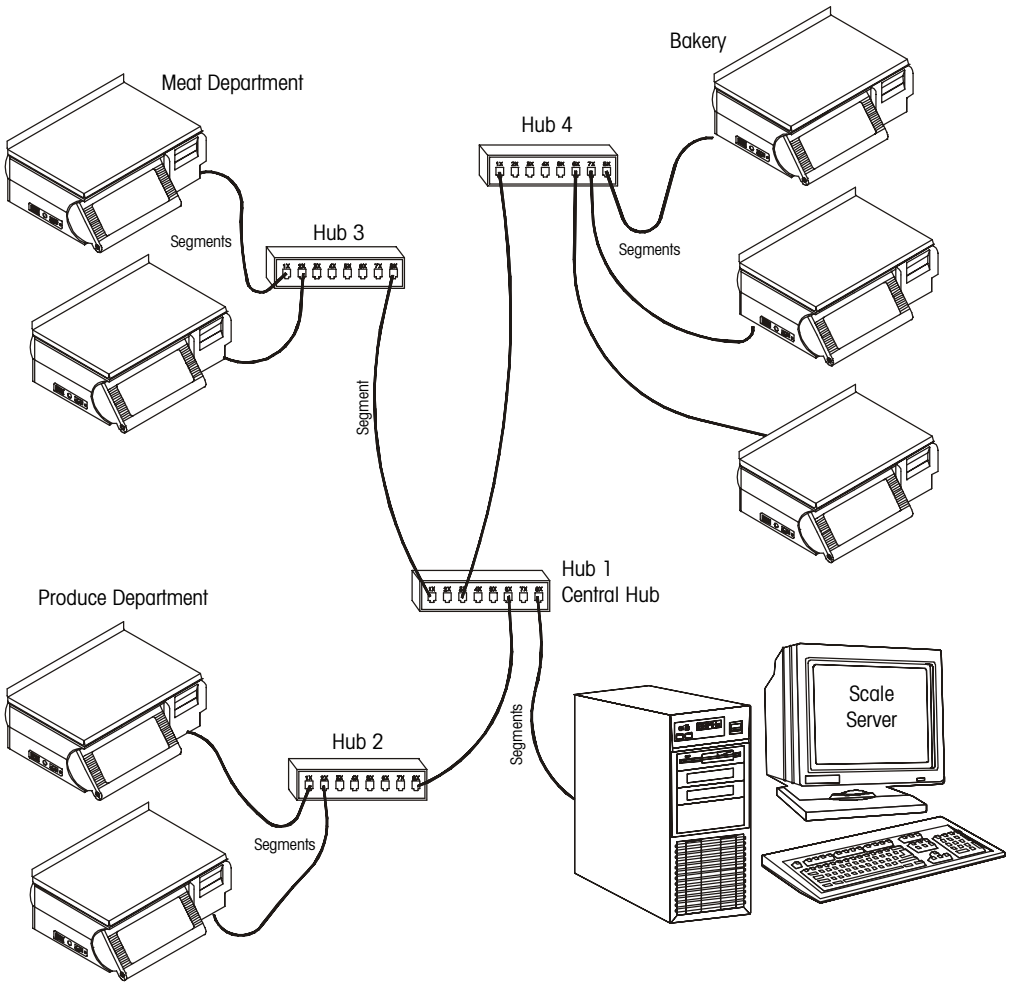
The illustration below shows an example Ethernet Network using the PC Scale Server. A Network Administrator or System Engineer should be consulted prior to purchasing any equipment. Many other configurations are possible due to the flexibility of Ethernet.

10BASE-T Segments are limited to 328 ft (100 m). Cat-5 (Category 5) Cable is recommended.

Check with the Hub manufacturer or documentation to determine how many Hubs can be connected between devices. Normally, up to 4 Hubs can be connected together. When the maximum is reached, a switch must be used to extend the network.

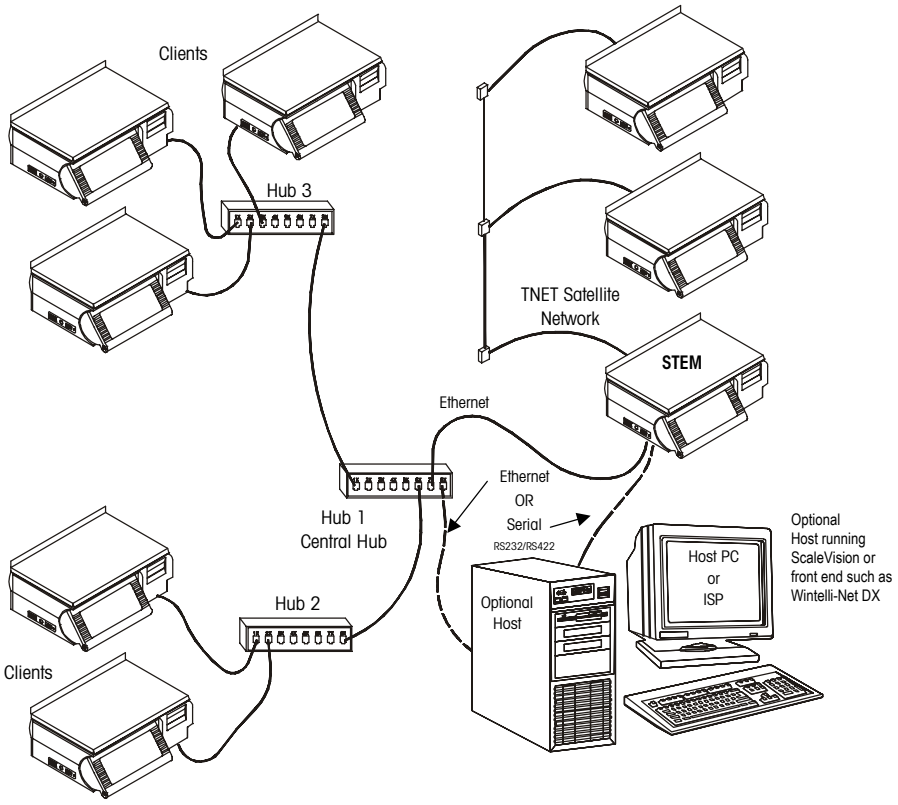
Some common hub manufacturers web pages are:

http://www.linksys.com
http://www.3com.com



Example Ethernet Scale Network

The illustration below shows an example network using the STEM (**Smart*Touch*®** Ethernet Master) as the Server. The STEM can support up to 25 Ethernet Clients and 25 TNET Satellites simultaneously.



Example STEM Network, Ethernet and TNET

IP Address

Note: **Do not duplicate any ID/IP numbers on the network**. If the STEM will be supporting both TNET Satellites and Ethernet Clients, the following guidelines should be followed.

TNET Satellite Unit ID - 1 to 30

Ethernet Satellites - xxx.xxx.xxx.031 to xxx.xxx.xxx.254

8361 Ethernet Satellites using Cutting Test - If cutting test is used, the IP Address must be below xxx.xxx.xxx.100.

The IP numbers are used to identify each of the devices on the network. The numbers must be unique on the network (no duplicates). When using both TNET Satellites and Ethernet Clients, no Unit ID's can be duplicated. If the network is separate from any other networks, the IP address can be any address other than 0.0.0.0 and 255. 255. 255. 255. If the unit is installed on an existing network, the network manager should supply the IP address.

Local Networks

When connecting clients to a local Ethernet network (not on the Internet, etc.) using a Scale Server PC or STEM, arbitrary numbers can be selected for the IP Addresses. The IP Address consists of a group of four numbers from 0 to 255, separated by periods, for example: 207.142.140.101. Do not duplicate any numbers on the network. The Server IP is the IP Number assigned to the STEM or Scale Server PC.

Use on Networks Connected to the Internet

If the network connects to the Internet, network IP addresses must be obtained and registered with American Registry for Internet Numbers (ARIN) (http://www.arin.net). The IP Address is used to specify hosts and networks. IP (Internet Protocol) addresses are part of a global, standardized scheme to identify devices connecting to the Internet. A Network Administrator or System Engineer should be consulted on these issues.

A gateway and submask number can also be used if the units are on different networks, but connected to a WAN or to the Internet.

Subnet Mask

A subnet mask is used with an IP address to subdivide a network into smaller networks, allowing a greater number of nodes on a network with a single IP address. The Subnet Mask is the part of the IP address used to represent a subnetwork within a logical network. By using Subnet Masks, network address space is available that would normally be unavailable. Subnet Masks also ensure broadcasts are not sent to the whole network unless intended.

The default Subnet Mask, 255.255.255.0, is recommended to reduce network traffic. When Subnet Mask, 255.255.255.0 is used, the broadcast range would be the local subnet only as follows:

255.255.255.0 Subnet Mask
207.142.140.XXX IP Address with a broadcast range of XXX.

255.255.0.0 Subnet Mask
207.142.XXX.XXX IP Address with a broadcast range of XXX.XXX

Using the Subnet Mask, 255.255.255.0, improves network performance by reducing broadcast traffic.

Router (Default Gateway)

If the server (Scale Server or STEM) is on a different network (see Subnet Mask), the client will access the server by routing the request to the Default Gateway IP Address. The Gateway will route the request to other devices on the network to deliver the request to the server. The requested data from the server will then be routed through the Gateway to the requesting client. The Gateway must be on the same local network as the client.

Server IP Address using Scale Server

If METTLER TOLEDO® Scale Server software is in use, this section describes the procedure for obtaining and setting the server IP.

Determining the Server IP Address using a Scale Server

Note: COMMAND PROMPT on Windows® 2000 is located at START, PROGRAMS, ACCESSORIES, COMMAND PROMPT.

To display the Server IP at the Server or Workstation, click START, PROGRAMS, COMMAND PROMPT. At the DOS prompt, type **IPCONFIG** and press ENTER.

The IP Address will be displayed as follows:

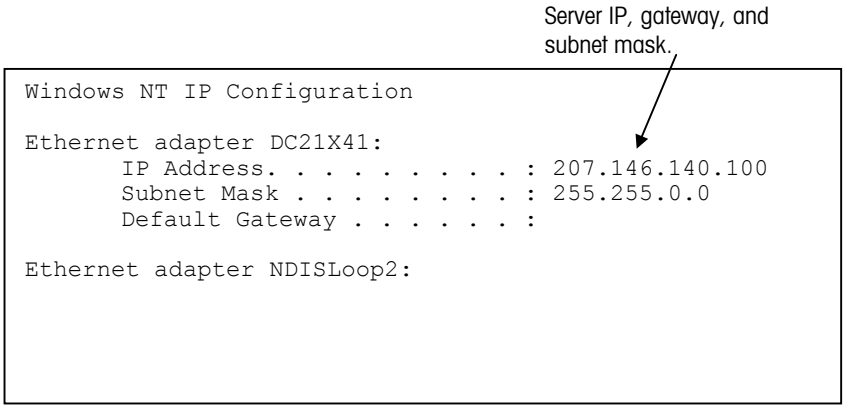


Figure 4-20: IP Address Display

If the Server IP Address has not yet been configured, refer to the following section, "Entering the Server IP Address".

Entering the Server IP Address on a Scale Server

If the Server IP Address has not been configured on the NT Server or Workstation running METTLER TOLEDO® Scale Server Software, open Control Panel (click START, SETTINGS, CONTROL PANEL). Next, double click on NETWORK.

The window for Network setup will display (below right). Click on TCP/IP Protocol, then click PROPERTIES. The window for "Microsoft TCP/IP Properties" will open (below right). Click on the IP Address tab if it is not displayed on top. Click on **Specify an IP address**, then enter the IP Address. Enter the Default Gateway and Submask numbers if required. When done, click **OK**.

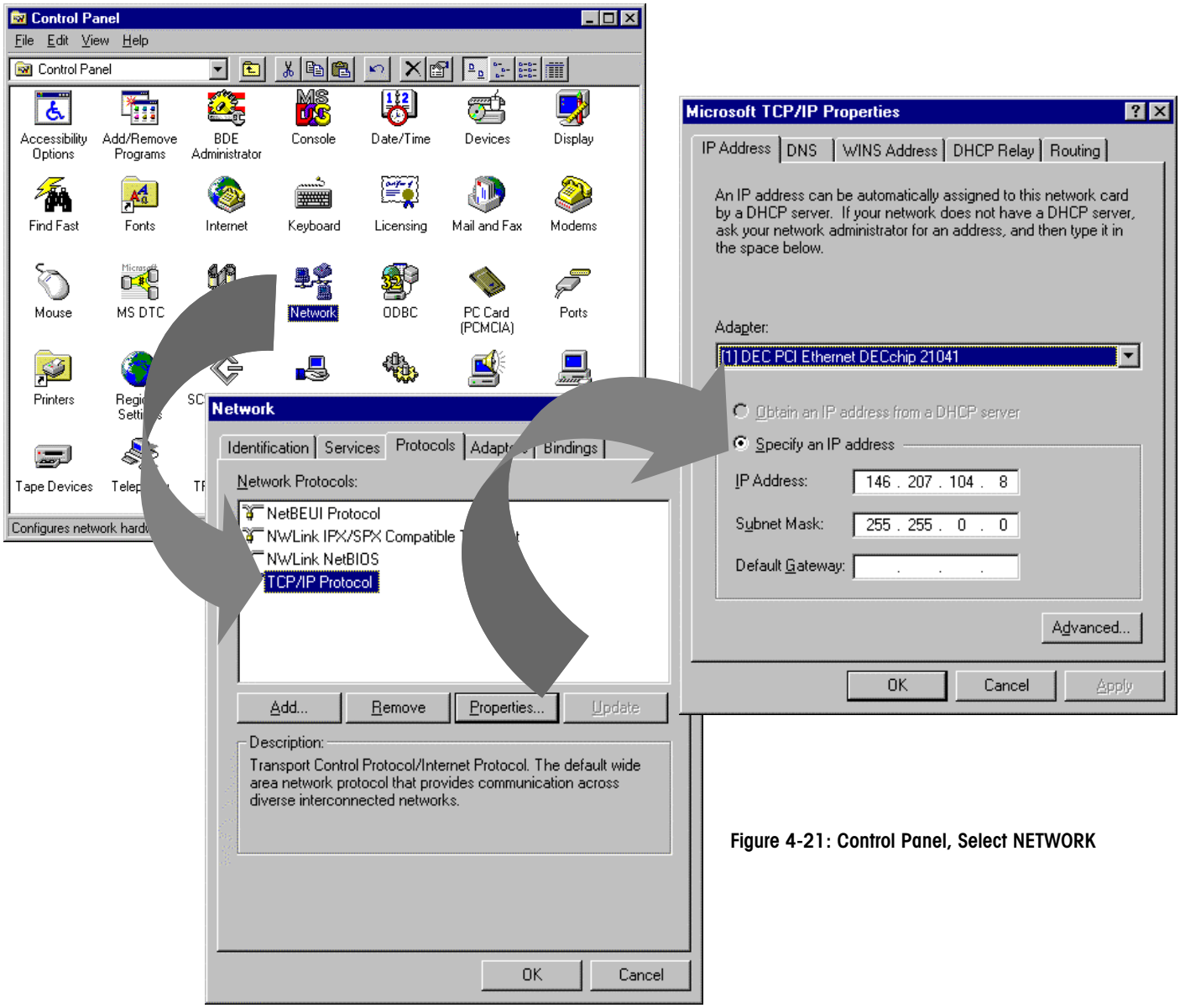


Figure 4-21: Control Panel, Select NETWORK

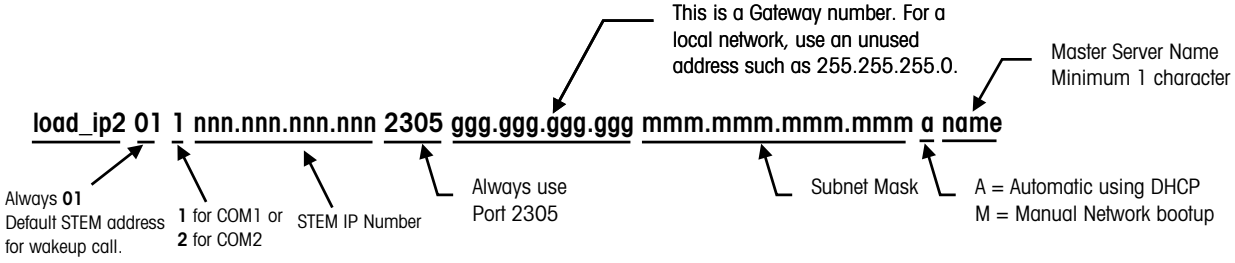
LOAD_IP2.EXE

This section describes how to set the STEM IP address using the PC program, LOAD_IP2.EXE.

If the STEM is installed in a TNET satellite, the IP address can be set through the master editor.

After the STEM is flashed with new software, the IP address and TCP port number must be set. Ethernet communications between the STEM and Ethernet Satellites will not be possible until the IP address and port number are set. The IP address can be set using a TNET Satellite or with a PC program. The PC connects to the STEM RS232 Host Port and uses program called "**LOAD_IP2.EXE"** or "Databack for Windows" (see next page; available from **METTLER TOLEDO®**). Power must be cycled on the STEM for the new settings to take effect. Refer to "Chapter 3, Master Setup/Version 2 Stem" for an explanation of the field terms.

To set the STEM IP, first connect an RS232 Serial cable to COM1 or COM2 on the PC and to the STEM Host Port. Running LOAD_IP2 with no parameters displays help. The **LOAD_IP2** command line is as follows:



The gateway number may be required to access a host PC on another network. Check with your IS department for details on a gateway and submask number.

An example command to set the STEM IP number to **207.142.140.100** would be as follows:

load_ip2 01 1 207.142.140.100 2305 255.255.255.0 255.255.255.0 m stem1

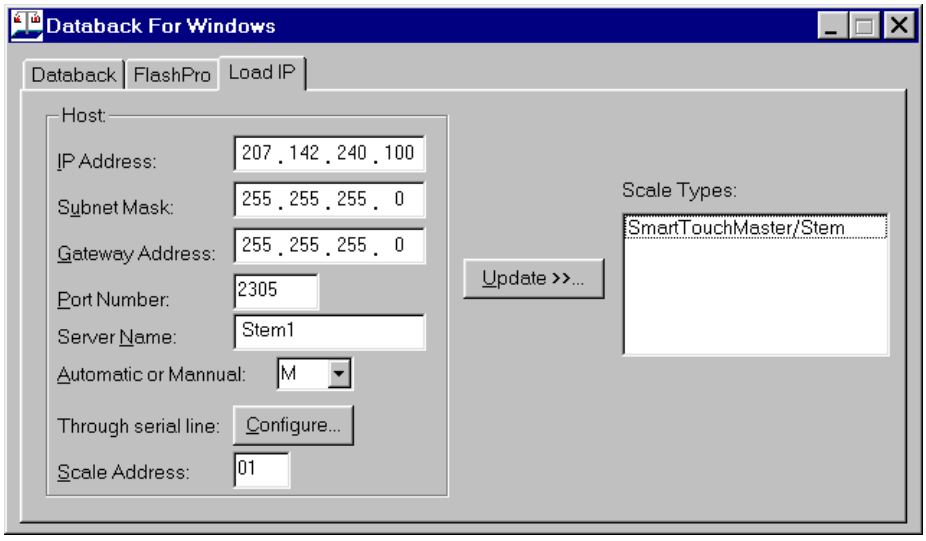
A batch file can be created to do this automatically. *Always wait at least 30 seconds after powering the STEM up before using LOAD_IP2*. When the IP number is sent successfully, the PC screen should be similar to the following example.

```
C:\STEM\>load_ip2 01 1 207.142.140.100 2305 255.255.255.0255.255.255.0
Scale address [01]; Local port [COM1]; ip address [207.142.140.100] port [2305]

      default gateway [255.255.255.0] subnet mask [255.255.255.0]
Scale returned ACK to wake-up call
Scale returned ACK to IP command.

C:\Flash\STEM\LoadIP>
```

If LOAD_IP2 reports **ACK**, the IP was set successfully. If LOAD_IP2 reports **NACK**, an error occurred. In this case power down the unit, then retry LOAD_IP2. If you get a blinking cursor after running the LOAD_IP2 command, cycle power to the scale and wait at least 30 seconds before attempting to run LOAD_IP2.

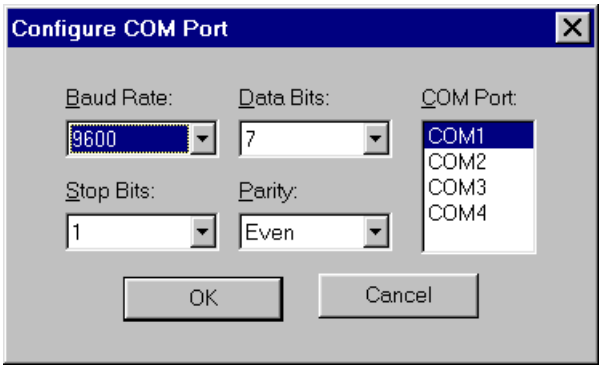
Databack for Windows

If you are using "Databack for Windows", to download the software, click the "Load IP" tab. Enter the IP Address you will be using for the STEM. Enter the Subnet Mask and Gateway Address if required. Leave the Port Number as 2305. Type in a "Server Name" if required (minimum one character). Select the "Automatic or Manual" boot preference (A=Automatic, M=Manual). Click on "SmartTouchMaster/STEM" scale type, then click the "Update" button. Refer to the next section for an explanation of the field terms.



Databack For Windows, Load IP Screen

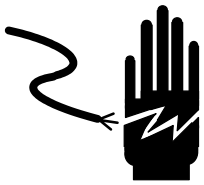
The default configuration for Load IP should not need to be changed (except the COM port) if the software was just flashed, as shown below.



Databack for Windows, Load IP Configure COM Port Screen

5 Troubleshooting

Troubleshooting Guide



⚠ WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

Following is a list of symptoms that could occur, and the recommended action to correct the problem.

General Symptoms

Symptom	Solution
Unit inoperative/Blank Display.	1. Check LCD Contrast Adjustment. Are Touchscreen Status LED's illuminated? 2. Check Power Supply Voltage. 3. Check Main PCB.
Touchscreen inoperative.	1. Clean IR lens around Touchscreen, check for obstruction. 2. Check status of IR PCB LED's visible through Touchscreen lens. **LEDs ON** Path is not blocked. Do LED's go off when path is blocked? If not, IR PCB is not functioning. Check Main PCB. **LEDs OFF** Path is blocked or IR PCB is defective. **LEDs Flickering** Path is blocked or IR PCB is defective.
Blank Touchscreen.	1. Check LCD Contrast adjustment. 2. Check Power Supply 3. Check Main PCB voltages. 4. Test LCD voltages.

Symptom	Solution
Backlight is dim or not working on LCD Display.	1. Check Connectors from Backlight to Main PCB. 2. Refer to Troubleshooting LCD Display Section.
Checksum Error when Flashing new software.	1. Incorrect file or compressed file used with Flashpro. Check the file name, and/or uncompress file before using. 2. File is corrupt. Use a new file.
Scale won't zero (Displays "EEEEEE" in weight field.	1. Check scale platter and spider for obstructions. Turn power off, and then back on. 2. Check Motion Readings setting in Calibration Menu. Zero setting will cause this symptom. 3. Re-calibrate. 4. Check scale base. 5. Replace Model 8361 Main PCB.
Erratic or inconsistent weight	1. Check scale base platter and spider for obstructions. 2. Check scale base Overload Stops.
Losing Unit setup data (ID, calibration, label formats, time, date, etc.).	1. Check Main PCB voltage at test points. 2. Check External Battery Voltage. Replace battery if voltage is below 4.00 volts. 3. Replace Main PCB.

Smart*Touch*® Master

Symptom	Solution
Master database is corrupt or master is losing data.	1. Check the battery on the Master CPU PCB. Refer to Chapter 6 "SmartTouch® Master CPU PCB". Replace the battery if the voltage is less than 3.8 VDC. 2. Initialize the master RAM (Setup, Master Editor, Config, Initialize RAM) and download the data files. Turn the power off for a few minutes then recheck the data files. 3. Verify the scale is not connected on the same power line as fluorescent lighting, motors, compressors, or other sources capable of producing line surges or electrical noise. 4. Check the AC power outlet using an outlet tester. If the tester reports reverse polarity or bad ground, contact a licensed electrician to fix the problem before reconnecting the scale to the outlet. 5. Replace Master Memory PCB and/or Master CPU PCB.

TNET Networks

Symptom	Solution
Satellite Off-Line with master.	1. Are other satellites on-line? If not, check master. 2. Check for duplicate Scale ID on another satellite. 3. Check TNET wiring. Disconnect all satellites from main cable. At one end, remove the terminating resistor from phone jack and check wiring with meter. There should be from 113 to 180 ohms between the red and green terminals of phone jack. If zero ohms, a wire is shorted. If excessively high, check for bad connections. 4. Reconnect one satellite. If On-Line, connect another satellite and observe on-line status. If one unit takes the others off-line, check that unit. 5. Check 25 ft (7.62 m) communication cable between scale and phone jack. 6. Check Model 8361 Main PCB.
All satellites Off-Line with master.	1. Check the 25 ft (7.62 m) cord from the master to the phone jack. 2. Disconnect satellites from Master. Does master come back on-line? If so check TNET wiring. Disconnect all satellites from main cable. At one end, remove the terminating resistor from phone jack and check wiring with meter. There should be from 113 to 180 ohms between the red and green terminals of phone jack. If zero ohms, a wire is shorted. If excessively high, check for bad connections. NOTE: Each terminating resistor must read approximately 113 ohms. 3. If master is off-line with all satellites disconnected, check the master.

Master to Host RS422 Networks

Master to Host RS422	Solution
Master offline with host on an RS422 Network	1. Refer to the section titled "RS422 Network Troubleshooting in this chapter.

Master to PC RS232

Master to PC RS232	Solution
Single Master offline with host PC using RS232	1. Turn the power off to the master, wait 30 seconds, and then reapply power. Recheck. If the master is still offline, shut down the PC, turn off power, wait 30 seconds, and then turn the power back on. Recheck the communication. If the master is now online, the problem was most likely a normal lockup that can happen occasionally to a PC serial port or to the master host port. 2. Verify the Master Host ID matches the Scale Address configured in the PC. 3. If another PC is available to troubleshoot the master. Disconnect the RS232 Communication Cable at the original PC and connect it to the test PC. Set up to match the master host settings. 4. If the master is online, troubleshoot the PC and serial port. Install a jumper between the PC's Transmit and Receive pins (Pins 2 and 3) on the serial port or on the end of the PC to master cable, then use the Loopback Test in ComTool (Alt-B) to check the port. If the word "TEST" is not displayed on the **Receiving** lines, the serial port is not working and should be replaced. If the master is still offline, check the cable from master to PC. Refer to Chapter 6 "Connecting the **Smart*Touch*®** Master to a PC, RS232 Interface". Is the communication cable 100 ft (30 m) or less? 5. An alternative method can be used to verify if the PC and cable are not causing the problem. First, disconnect the communication cable from the master host port and connect the communication cable to the AUX port on the left side of the scale. Under Unit Setup, Peripheral Configuration, write down the host ID and baud rate and enter these settings in ComTool (Alt-S). Use the Online Test (F10) in ComTool to check the PC and cable. If the scale reports online, the problem is in the master. If it is offline, the problem is probably in the cable or PC.

Ethernet Networking

Ethernet Networks	Solution
One or more clients offline.	1. Are other clients online? 2. Is the hub link light on? Check the hub and any RF nodes especially if all scales served by one hub off line. Refer to Chapter 4 "Networking the Model 8461 Client" and Chapter 6 "Ethernet Network Troubleshooting". 3. Check polarity of patch cable. The patch cable from Hub to Client or RF node must be a straight through UTP patch cable. 4. Check for duplicate IP on another client. 5. Verify the IP address of the NT Server or Workstation match the Server IP in the client. 6. Check Model 8461 Ethernet PCB.
All clients offline.	1. If the NT PC is on a network with other PCs, PING another PC on the network (refer to Chapter 6 "Ethernet Network Troubleshooting"). Observe the LEDs on the NIC (Network Interface Card). When a ping is started, the activity, transmit and receive LEDs should be active when the PC and NIC are working properly. If the transmit LED does not light, troubleshoot the PC and NIC. 2. Attempt to "ping" the NT PC from another PC on the network. 3. Check the NT Server or workstation. Shut Down the NT PC, turn power off, and then reapply power. 4. Recycle power to the hub. 5. If communication cannot be established with any other device on the network, replace the Ethernet Card (NIC) in the PC.
Hub link light blinking or off. **(Hub to Node)**	1. Is the Patch Cable connected at the hub and node (Ethernet Client for RF node)? 2. Check power to the Satellite or RF node. 3. Remove power to Satellite or RF node for 30 seconds, then reconnect power. 4. Is the correct patch cable used? The cable must be straight through from hub to node. 5. Check power to hub and to Satellite or RF node. 6. Plug the patch cord into a different port. If the link is good on another port, the hub may be damaged. 7. If the problem persists, plug another known working node (client or RF node) into the suspect port. If this works, check the Satellite or RF node. Areas to check include the Ethernet jack and internal cable to the Ethernet PCB; the Ethernet PCB, and the Main PCB.

Ethernet Networks	Solution
Hub link light is blinking or off. **(Hub to Hub)**	1. Is the Patch Cable connected at both hubs? 2. Verify the correct patch cable is used. Hubs with an internal crossover (crossover ports are sometimes marked with an X), an uplink port, or a switchable port use a straight through patch. Hubs without any crossover capability use a crossover patch cable. 3. Remove power to both hubs for 30 seconds, then reconnect power. 4. Replace the hub(s).
Hub Partition light is on.	1. This indicates a problem with the node or wiring between the port and the node. 2. Remove power to the hub and node for 30 seconds, and then reconnect power. 3. Plug the node into a different port. 4. Replace the patch cable. 5. Verify cable is not running close to a high EMI source (electrical magnetic interference). 6. Troubleshoot the client or node.
Hub Collision light is on.	1. Indicates two or more nodes are attempting to transmit at the same time causing a "collision". 2. Some collision is normal and the light may turn on briefly from time to time. If the light stays on first check the patch cables from the hub to the nodes. Use of a crossover instead of straight through patch cable can cause this condition. 3. Remove power to all of the clients and RF nodes for 30 seconds, and then reconnect power to each client and node one at a time to isolate which client or RF node is causing this condition. 4. If the Collision light stays on when a particular client or RF node is powered up, troubleshoot that unit. For the RF node, replace the unit. Areas to check in the client include the Ethernet jack and internal cable to the Ethernet PCB; the Ethernet PCB, and the Main PCB.

Ethernet Networks	Solution
RF Not Communicating	1. Turn the power on and check the Mercury-PC status LED's. The Power LED and Ethernet Link to Scale LED should be ON (green). 2. The Wireless Link LED should be green when the scale is within range of an Access Point. The Wireless Link and Ethernet Link LED's will turn red when activity is present. 3. If the Power LED is red, this indicates an error. Check the error log if you can access the configuration menu. 4. Disconnect power to unit and make sure the radio is seated securely in the socket. 5. Check all internal Ethernet/RF connections. 6. Turn power back to ON and recheck the Mercury-PC. If the error persists, either the radio or the Mercury-PC may be defective.

Printing Problems

Symptom	Solution
Printer won't deliver a label.	1. Check Take Label cursor on display. If the cursor is ON: -Check Label Taken Sensor for obstructions. -Clean Label Taken Sensor lens on transmitter and receiver. -Test Label Taken Sensor. 2. Refer to printer service manual for troubleshooting instructions.
Incorrectly indexes labels.	1. Check label installation and that the label guides are set to the correct width. 2. Check for a label stuck in Gap Sensor. 3. Check the label format and label size. 4. Clean Gap Sensor lens. 5. Check and clean platen roller, stripper bar, and delivery path Using MT Cleaning Pen P/N 082287020. 6. Adjust Offset Length. 7. Replace the Gap Sensor. 8. Refer to printer service manual for troubleshooting instructions.
Labels printed even if one is not yet taken.	1. Check setting of stripped/un-stripped option in Printer Setup. 2. Check Label Taken Sensor. 3. Refer to printer service manual for troubleshooting instructions.

Symptom	Solution
Out of labels errors.	1. Make sure labels are correctly threaded through the Gap Sensor. 2. Clean/Check Gap Sensor. 3. Adjust Image offset. 4. Refer to printer service manual for troubleshooting instructions.

Jumpers

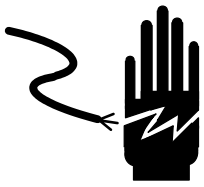
Jumpers on the Main PCB should be set as follows:

W1 - On for normal video. Off for Inverse Video.

W2 - Must be Off.

W3 - Must be Off.

Power Supply



WARNING

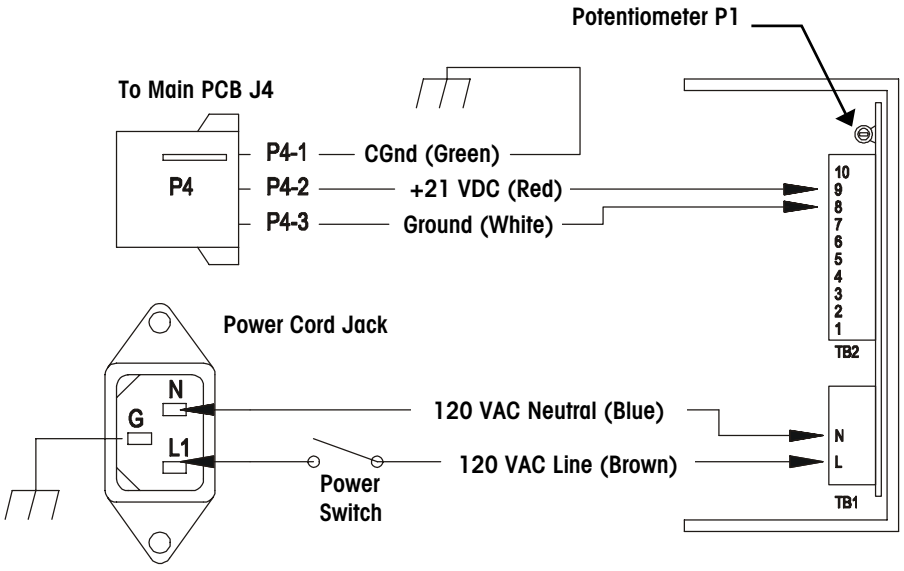
ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

Testing the Power Supply

Before testing the Power Supply, check the AC input power from the AC outlet. Check the voltage first, and then check with a Grounded Outlet Tester. If the input AC voltage is between 85 VAC to 264 VAC and the tester does not report any problems, proceed with the following voltage tests.

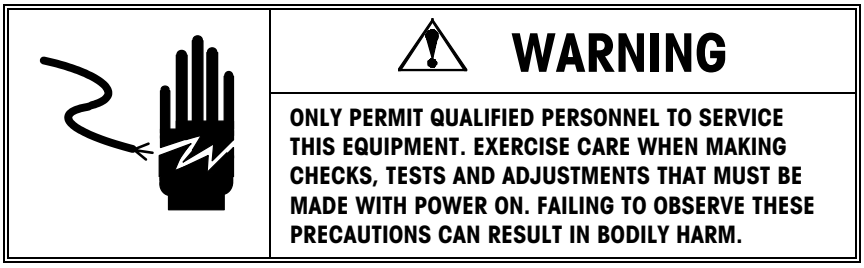
Place the Power Switch to the OFF position. Remove the rear cover and the RFI cover. Disconnect the LCD/IR harnesses. Place the power switch to ON, then check the +21 VDC output voltage at the Power Supply terminal strip TB2-9 to ground, or at plug P4 Pin 2 to ground, as shown in the illustration below. The acceptable output range for the +21 VDC output is +20.5 to +22.5 VDC.

If the voltage is high or low, adjust potentiometer P1 for the +21 VDC output. If the output voltage cannot be adjusted to within tolerance with P1, or if the output voltage is zero volts, replace the Power Supply.



Power Supply Test Points

Main PCB



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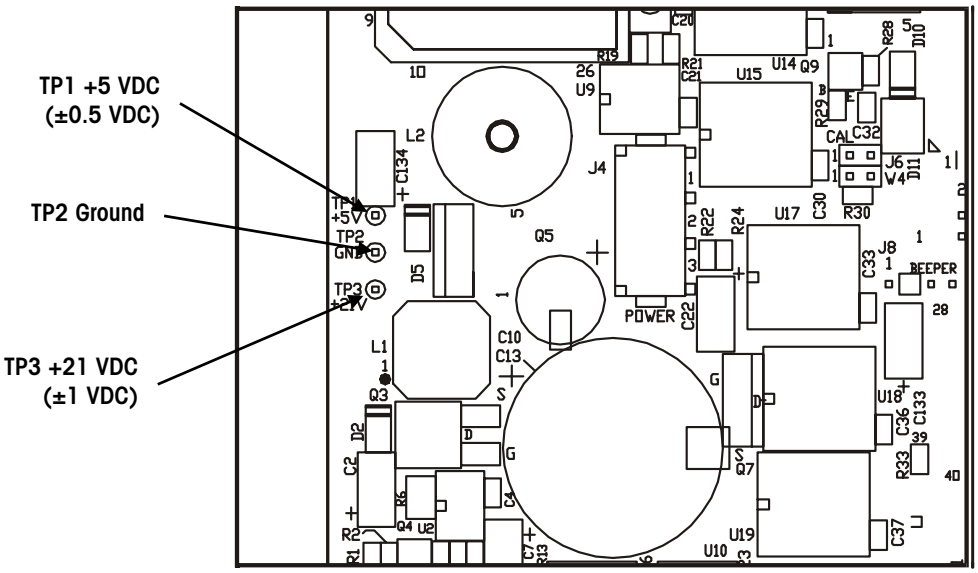
The Main PCB receives +21VDC from the Power Supply that it uses to supply +21VDC and +5VDC to various components on the PCB. The SuperCap and +4.5 VDC battery are used to backup setup data if AC power is off, and to backup PLU records in the event the master goes Off-Line. The illustration below shows the locations of the voltage test points on the Main PCB.

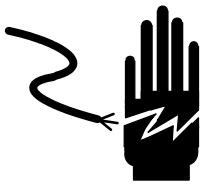
The voltage test points on the Main PCB are easily accessible after removing the rear cover and the RFI cover, as shown below. If the voltages are not within the range specified below, and the Power Supply voltage is correct, replace the Main PCB.

Note: If the Main PCB is replaced, the unit must be flashed with software.



Voltage Test Points on the Main PCB

IR Touchpanel PCB



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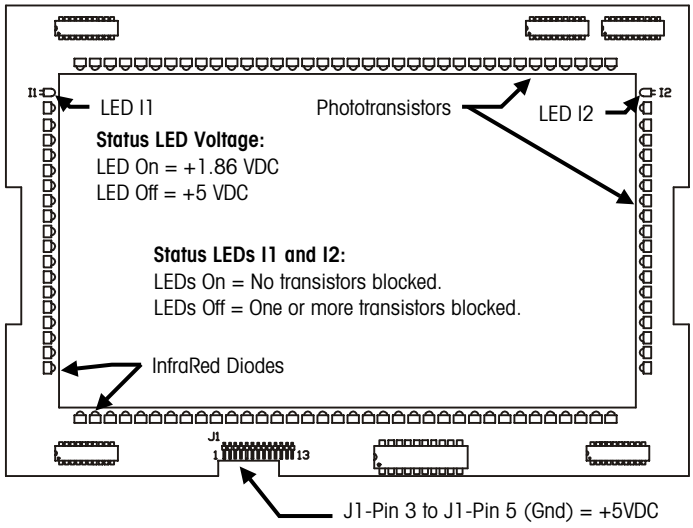
⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

The illustration below shows a diagram of the IR (infrared) Touchpanel PCB (IR PCB). Two status LED's (I1 and I2), visible through the display lens, can be used to verify operation of the Photo Transistor/IR Diode arrays. The IR PCB is working properly when the LED's are ON with nothing blocking the phototransistors and OFF when one or more are blocked (indicating a key closure). If the LED's are ON all the time, check for an object blocking the transistors. If not, the PCB is may be defective.

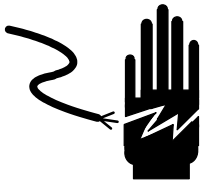
CAUTION!
Exercise care when handling the IR PCB. Do not bend the board or move the phototransistors or diodes out of alignment.

The +5VDC supply voltage at J1 on the IR board can be checked, as shown in Figure 6-3. When one of the phototransistors is blocked, the Status LED's will be OFF (+5 VDC). When none of the phototransistors are blocked, the LED's should be ON (+1.86 VDC). If the +5 VDC supply from the Main PCB is present at J1 Pin 3, but the LED's do not change state, replace the IR PCB. If the LED's flicker, and the power supply voltage is good, replace the IR PCB.



Touchpanel PCB Voltage Test Points

LCD Display



WARNING

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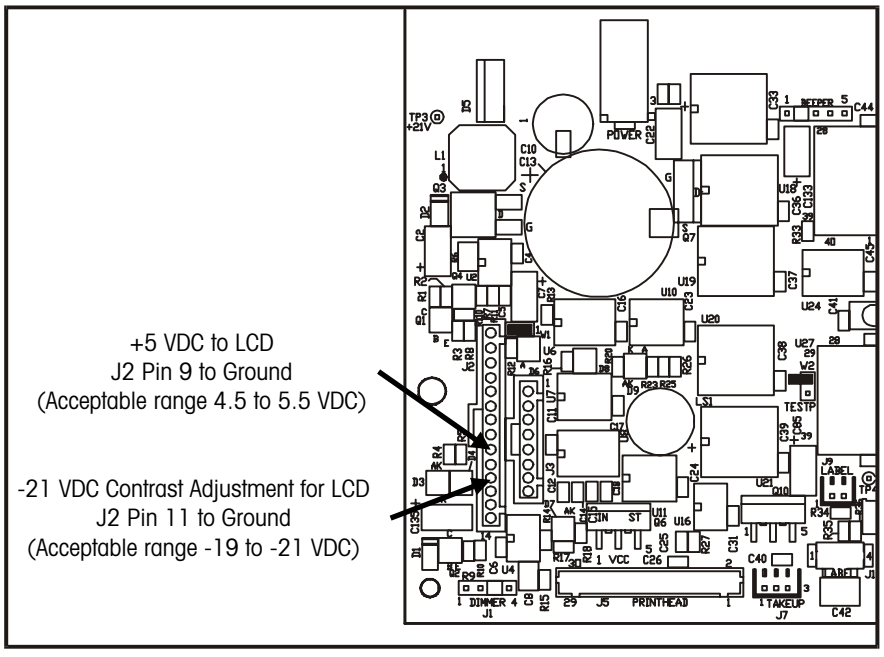
The LCD Display uses a CCFT (Cold Cathode Fluorescent Tube) to light up the LCD to provide a more readable display under low light conditions. Care must be taken when testing the display circuitry, as high AC voltage is used to power the CCFT. There are three electrical parts to the LCD assembly: 1) LCD Panel, 2) CCFT, 3) Inverter PCB.

To adjust the contrast, first touch the HELP key area, located in the upper left corner of the Touchscreen. When HELP is displayed, touch the key marked **Adjust Cont**.

The LCD contrast is controlled by the -21 VDC supplied to the LCD by the Main PCB. The -21 VDC will range between -16 and -21 VDC, depending on the contrast setting. When the display is dark, the voltage will be near the maximum of -21 VDC. When the display is light, the voltage will be near the minimum of -16 VDC. If the voltage is zero or outside this range, and the contrast cannot be adjusted, replace the Main PCB. If the +5 VDC and the -21 VDC are within acceptable range, but the display is blank or extremely light/dark, replace the LCD Display PCB. Always exercise care when handling the LCD. If you replace the LCD, always pack the old LCD in the original factory container that the replacement part was shipped in.

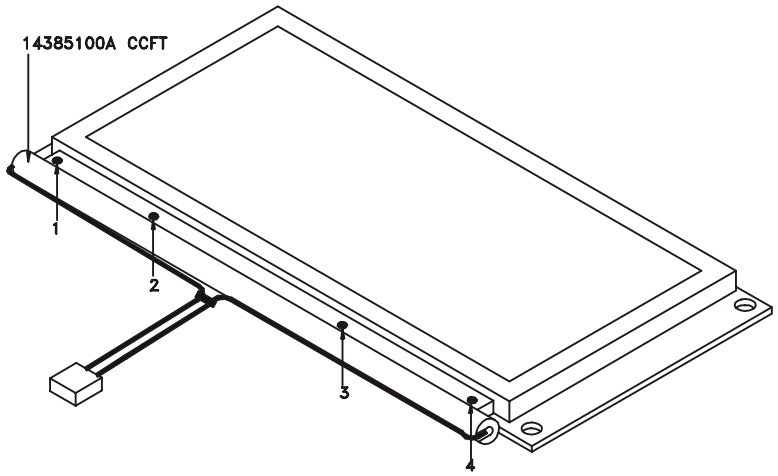
The +5 VDC Supply Voltage and Contrast Control Voltage Test Points are shown in Figure 6-4. To adjust the contrast, first touch the HELP key area, located in the upper left corner of the Touchscreen. When HELP is displayed, touch the key marked **Adjust Cont**. The contrast circuit can be checked at J2 on the Main PCB, as shown below.



LCD Contrast/Voltage Test Points on Main PCB

If no activity is detected for approximately 15 minutes, a timer circuit signals drops a +5 VDC control line to +1.9 VDC. This in turn, causes the Inverter PCB to lower the voltage output to the CCFT. The dimmer circuit can be tested at J1 on Main PCB.

The LCD CCFT is powered from a DC to AC Inverter PCB that converts a variable +5VDC input to a 380 VAC/40 kHz/5 mA output. (Note: Initial startup voltage is approximately 900 VAC). The Inverter PCB is located under the LCD Panel. If the backlight is not working, and the +5 VDC at the Main PCB checks good, the problem may be the Inverter PCB or the CCFT (Cold Cathode Fluorescent Tube.) The output voltage from the Inverter to the CCFDT cannot be checked using a standard volt-ohm meter, since the unloaded voltage is approximately 1100 VAC RMS at 40 kHz. If the Inverter is suspected as defective, it is best to plug in a new backlit display assembly, or a new CCFT (which is available separately as P/N 14385100A) to test the Inverter PCB. If the new CCFT does not light up, replace the Inverter PCB. The illustration below shows the LCD and CCFT.



14385100A CCFT Replacement

To replace the CCFT, first turn the power switch to the off position, then disconnect the AC power cord from the outlet before proceeding. Remove the LCD Panel from the cover assembly. Disconnect the CCFT voltage harness from the Inverter PCB. Remove the four screws as shown in Figure 6-5. Install new CCFT reversing previous steps.

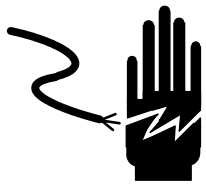
Smart*Touch*® Master Memory PCB

Note: Although the battery on the Master CPU or the Master CPU PCB can be changed without normally losing data, it is always wise to first backup the memory using DataBack if possible.

The **Smart*Touch*®** TNET Master and STEM Memory PCB provides storage capacity for the PLU, Extra Text, Nutrition Facts, Graphics, and master setup data. The PCB is available in 2M, 4M, and 8M memory. The Master CPU provides the running and backup battery voltage for the Master Memory PCB. The Master Memory PCB has an onboard Supercap that will retain backup voltage for the memory for approximately 12 hours. The Supercap allows changing the Master CPU without losing data on the Memory PCB. The Supercaps require up to four hours to initially charge. Do not remove a programmed Master Memory from the Master CPU until the Supercaps have fully charged.

Smart*Touch*® Master CPU PCB

If the Master has lost data (either all or partial) or is off-line with either the satellites or a host, the Master CPU voltage supply and backup battery voltage should be tested. If the battery voltage and the supply voltage are within tolerance, data loss could be caused by the Master Memory PCB. See the previous section.



⚠ WARNING

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The +5 VDC supply voltages from the Main PCB to the Master CPU can be checked at the point shown in the figure below. If the voltage is not with the tolerance range, check the voltage at the Main PCB. If the voltage is correct, and problems exist, the Master CPU PCB may be defective.

When AC power is off, a 4.5 VDC Alkaline battery (mounted to the Master CPU PCB) is used to backup data stored on the Master CPU and Master Memory PCB. This battery is not rechargeable. The battery should retain data under normal conditions for up to two years with power off. If the battery voltage is not within the tolerance range, replace the battery. In most circumstances, the battery can be safely replaced without data loss. When the battery is removed, a SuperCap on both the Master CPU and Master Memory PCB will hold memory for approximately 12 hours. If the battery needs replacement, order P/N 14548600A Replacement Battery. (Note: Although the battery can be changed without normally losing any data, it is wise to first backup the memory using DataBack.)

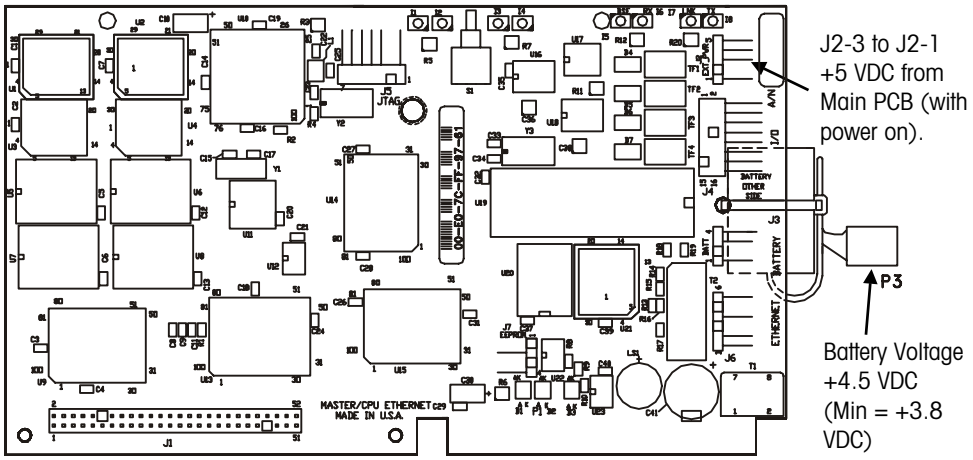
There are eight LED's on the Master CPU Board. Their functions are as follows:

LED	Function
I1	ON when receiving and processing host commands.
I2	When flashing software this LED will be ON. In normal operation, if an error is detected in the master software, the LED will be ON. Normally this LED is OFF.
I3	This LED will alternately flash ON / OFF with LED I4 while the master software is starting up. This will last for about 3 seconds. Afterwards, this LED indicates TNET communications. When no TNET satellites are detected, the LED will be blinking at a slow rate. It will actually look dim at this rate. If TNET satellites are detected, the LED will be turned ON more during most of the blinking and will look brighter.
I4	This LED will alternately flash ON / OFF with LED I3 while the master software is starting up. This will last for about 3 seconds. This LED should be ON during normal operations. If it is not ON, the software has failed to properly start.
I5	(BSE) - This LED is only on the STEM. This LED will be ON when the Ethernet controller is being accessed. If data packets are received or transmitted this LED will be ON briefly.
I6	(RX) - This LED is only on the STEM. This LED will be ON whenever Ethernet data packets are received for the STEM.

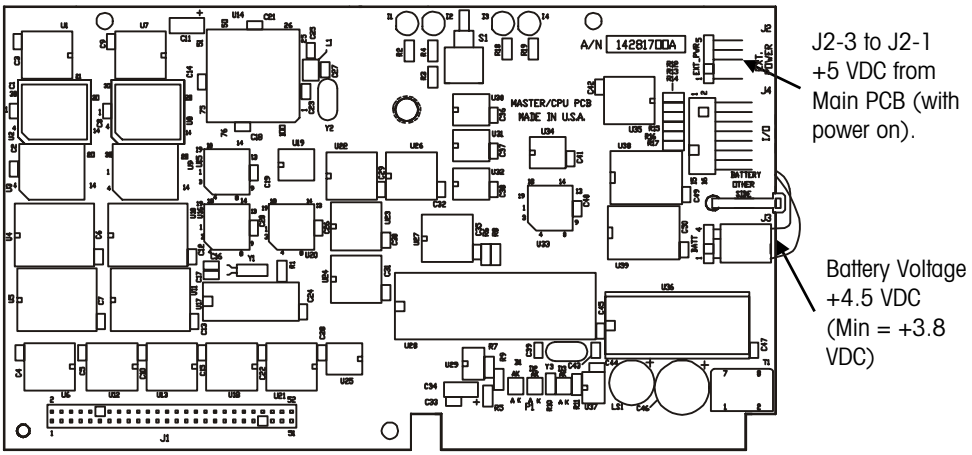
I7	(LNK) - This LED is only on the STEM. This LED will be ON if the STEM is properly connected and communicating to a hub.
I8	(TX) - This LED is only on the STEM. This LED will be ON whenever the STEM transmits Ethernet data packets.

Note: The SuperCaps on the TNET Master CPU and Master Memory PCB require up to four hours to initially charge. Do not remove a programmed Master Memory PCB from the Master CPU until the Supercaps have charged or memory loss will occur.

STEM Master CPU PCB



TNET Master CPU PCB



Master CPU Voltage Test Points

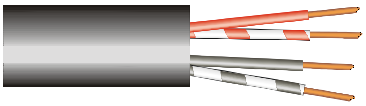
The STEM PCB may have a watchdog timer chip. This timer is refreshed on a regular basis, about every minute and a half. If the timer is not refreshed, (an example is the STEM software locks up), the watchdog circuit automatically forces a reset of the STEM CPU. The refresh is a software function available in the STEM V2.0 and later software.

A new jumper, W1, enables the watchdog timer chip. When a jumper is ON W1, the watchdog is enabled. No jumper on W1 disables it. Disabling it makes the PCB compatible with the V1.1 software. This new jumper is located on the bottom right of the PCB near the beeper and the Ethernet connector, J6.

Testing TNET Network Wiring

Always verify the correct wire is used and that the network is wired correctly. Refer to the TNET hardware specifications in Chapter 4.

(*)=May have letter prefix.



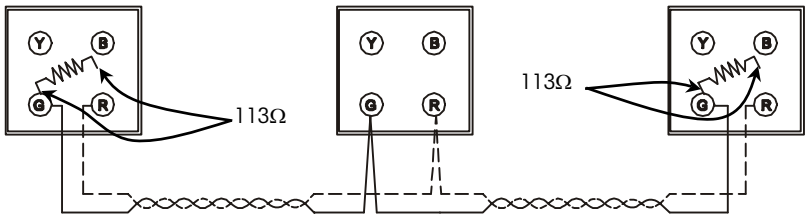
Two-Pair UTP (Unshielded Twisted Pair) Category 2 (or higher), 22-24 Gauge Cable is required for the TNET network.

Only one pair is used. The other pair is a spare. Do not use one wire from each pair.

When troubleshooting TNET network online/offline symptoms, the wiring should be tested as shown in the following Test 1, Test 2, and Test 3. All scales must be disconnected from the phone jacks before making the tests. (Note: verify the cable is unshielded phone cable (UTP Category 2 or higher) as specified in Chapter 4.

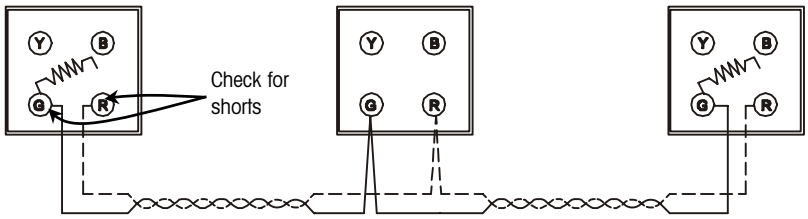
Test 1

Remove both (*)12839300A terminating resistors from one terminal in the end phone jacks. Check both terminating resistors with a meter. Each resistor must read 113 ohms (±2 ohms). If not replace the resistor.



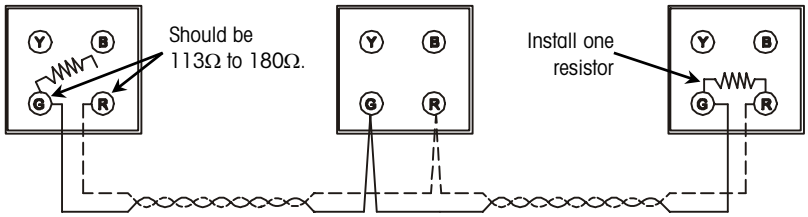
Test 2

Disconnect all scales from the network. While the resistors are off, check across the *Red* and *Green* terminals for shorts. If there is continuity or low resistance between the red and green terminals, there is a short. Isolate the short by disconnecting and testing sections of wire between phone jacks.



Test 3

With all scales disconnected from the network, install one resistor. Check the resistance between the *Red* and *Green* terminals at the end where the resistor is off. You should read between 113 and 180 ohms (depending on the cable length). Zero indicates a short in the cable or resistor. Very high or infinity resistance indicates a defective resistor or break in the cable.



Completion

Reconnect the scales to the network. Before connecting each scale, check the AC outlet with a GOT (Grounded Outlet Tester) to find any faults such as reverse polarity and bad grounds. Report any faulty outlets to the appropriate personnel for repair.

RS422 Network Troubleshooting

This section outlines troubleshooting procedures that can be used to isolate communication problems on an RS422 network. Before performing these tests, you should verify the problem is not due to a duplicate or incorrect scale address, incorrect host port setup in the scale, incorrect COM Port setup in the PC, bad connection, incorrect wiring, etc. The host port may have been marginally damaged due to disruptive events on the network wires. The Communication Cable Test can be used to verify the integrity of the wiring.

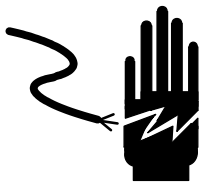
Verify Setup

Verify host port settings in the scale and the serial port setup in the PC. Refer to Chapter 3, "Configuring the Master, Host Port Setup. The configuration in the master must match the configuration in the PC software program. For example, Intelli-Net uses 7-bit, Even Parity, and one stop bit. This should match the setup in the master. Continue with the next section when the setup has been verified.

Disconnect Power and Network Cables

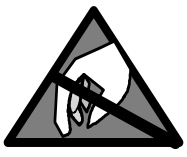
Disconnect AC power to the scale when performing these tests. The Communication Cable Test is performed with power off.

Disconnect the network cable (including any protection devices, converter boxes, etc.) at the AUX/Host port of the scale.



⚠ WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.



⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

Communication Cable Test

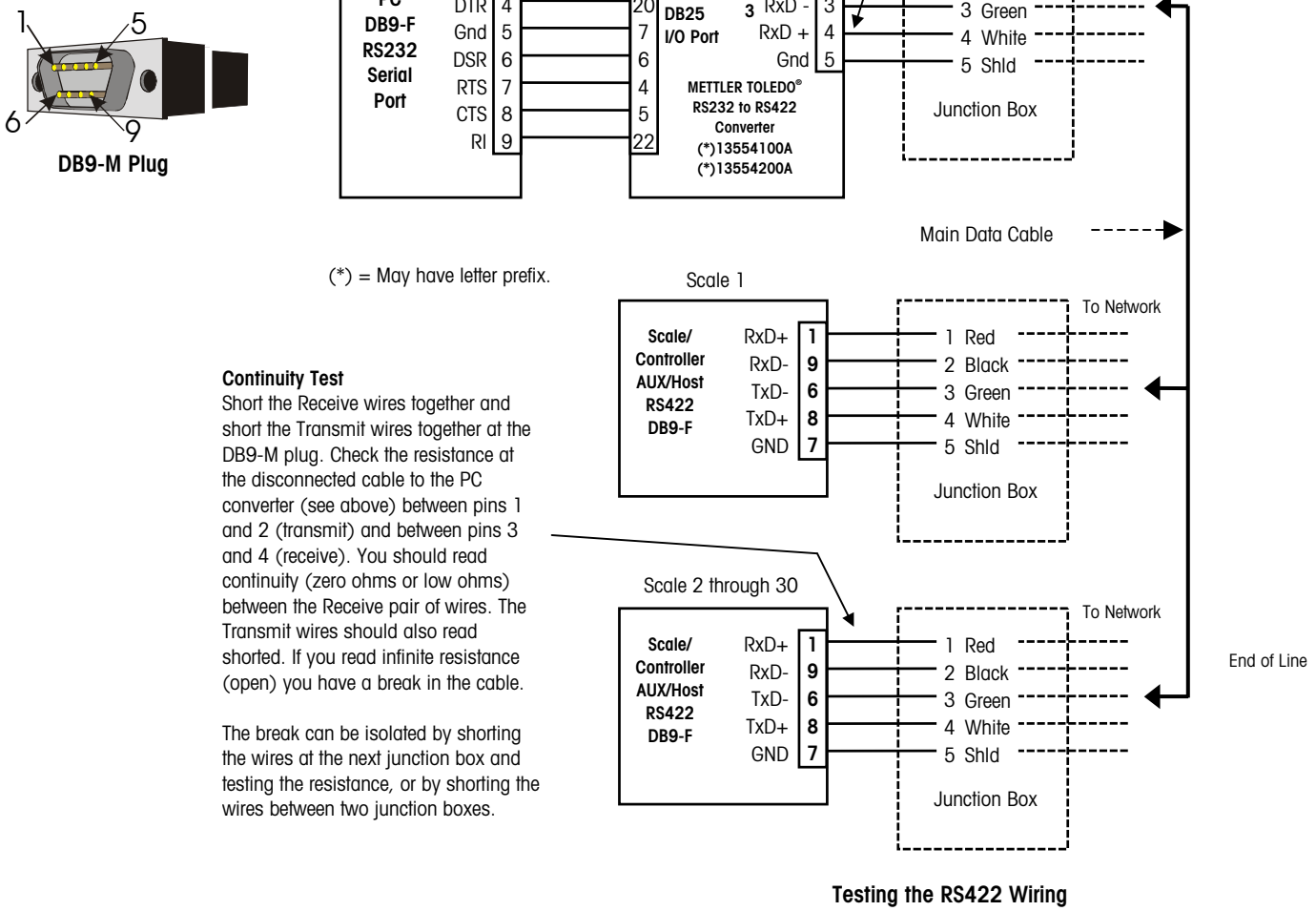
Disconnect all of the scales from the network before performing this test procedure.

Test for Shorts

Disconnect all scales from the network at the host port (including any protection devices, converter boxes, etc.), and at the host PC. Check the resistance between all of the wires in the communication cable. Any resistance less than infinite resistance (open) indicates a possible short somewhere in the cable. If there is a short, you can isolate the short by disconnecting sections from the network and checking the resistance of the individual sections one at a time. See below "Test for Shorts".

Continuity Test

If you are experiencing off line conditions with certain scales and you have checked all other possibilities, the problem could be caused by a break in the communication cables. All of the scales must be disconnected from the network at the host port (including any protection devices, converter boxes, etc.). See the text in the illustration below titled "Continuity Test".



Testing the RS422 Wiring

Ethernet Network Troubleshooting

General Troubleshooting

Make sure that any excess network cabling isn't coiled. This can create electromagnetic fields that could interfere with data transfers. Try to keep cables away from florescent lighting, UPS (uninterruptible power supplies), AC outlets and other sources that may produce significant electromagnetic interference.

When connecting a node to a hub, the patch cable must be straight through. Pins 1, 2, 3, and 6 at the PC should line up pin-for-pin at the other end. Category 5 cables are recommended. When connecting two hubs together with 10Base-T cables, the patch cable may need to be a crossover cable. Check with the documentation that comes with the hub.

A 10Mb hub can't connect to a 100Mb hub unless a switch is used to translate the packets between the two speeds. Some hubs can also switch between the two speeds.

10BASE-T Segments (node to hub or hub to hub) are limited to 328 ft (100 m).

A Thin Ethernet Coax backbone can be used for hub-to-hub connections (if the hubs have a BNC connector) up to 606 ft (185 m). If Thin Ethernet is used the coax cable must be terminated at both ends with a 50-ohm resistor.

There is a maximum of two Inter-Repeater Links between devices without using bridge or switch (A hub is a repeater) and a maximum of 4 hubs and 5 segments between any two nodes.

Hubs

Since each node on a 10 Base-T network has it's own cable connecting it to a central hub, it not likely that any node can cause the entire network to fail. Most hubs have a "partitioning" function that can detect a problem on any of its ports. If a problem is found, the node is disconnected from the rest of the network to isolate the node until the problem can be corrected.

Hubs also have LEDs that indicate the status of the hub and ports. Refer to the documentation that comes with the hub for additional information.

The partitioning function built in to most hubs and the star-wired topology makes it easy to troubleshoot a 10 Base-T network. Troubleshooting can be as simple as disconnecting nodes from the hub one at a time until the network recovers. Usually, the hub will give an indication as to which node is causing a problem.

Disconnecting a node from the network will have no effect whatsoever on the rest of the network. Moving an attached device is simply a matter of unplugging it from the hub and reconnecting it somewhere else.

Most hubs have a Collision LED that indicates packet collisions are occurring. This means that two or more devices are attempting to communicate at the same time. Some collision activity is normal.

Always refer to the User's Guide shipped with the hub for detailed information on the operation and description of the LED indicators.

Some of the common LED indicators on a hub are:

Power Indicates power is on to the hub.

Link or Activity Indicates the communication between the hub's port and the transmitting node is good. Most hubs will indicate a good connection by turning the Link LED ON. If the Link LED is OFF, check the cable connections and check that you are not using the wrong cable. Try another cable on the same port. If it works, replace the cable. If the problem persists, plug the cable into another port. If it works on another port, the port may be defective. If all port Line LEDs are off, replace the hub. If the problem still persists for this one unit, check the internal connections from the Ethernet PCB to the Ethernet Jack or replace the Ethernet PCB.

Collision Indicates two or more nodes are attempting to transmit on the network at the same time. Check the cable from the hub to the node. Using a crossover cable instead of a straight through cable can cause this condition. Turn the units off, then turn them back on one at a time.

Partition Some hubs have specific partition LEDs. Others may indicate a partition by a blinking LED. If a problem is found, the node is disconnected from the rest of the network until the problem is corrected.

PING

Refer to the next section HOSTS File for additional information on PING.

Ping (Packet InterNet Groper) is a program that can be used to test the communication on a TCP/IP network by sending an echo request to a client or host. The responding unit will reply if the communication and the unit are working properly.

Ping can be run from any PC on the network. Ping is run from the Command Prompt. The command line for ping is as follows:

ping *ipaddress*

(Where *ipaddress* is the IP Address number of the client or host.)

An example ping command from an NT host at the command prompt to a client with the address **109.205.104.25** is as follows:

ping 109.205.104.25

When the communications are working properly, the responding client will send a reply back to the NT host as follows:

```
Microsoft(R) Windows NT(TM)
(C) Copyright 1985-1996 Microsoft Corp.

C:\>ping 109.205.104.25

Pinging 109.205.104.25 with 32 bytes of data:

Reply from 109.205.104.25: bytes=32 time<10ms TTL=64
Reply from 109.205.104.25: bytes=32 time<10ms TTL=64
Reply from 109.205.104.25: bytes=32 time<10ms TTL=64
Reply from 109.205.104.25: bytes=32 time<10ms TTL=64

C:\>
```

Example from NT command prompt when the client does not respond:

```
C:\>ping 109.205.104.25

Pinging 109.205.104.25 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

C:\>
```

If the client does not respond, verify that the client and server IP (at the client) are correct. Try pinging another client nearby. If that unit responds, connect the patch cable from the working client to the client that does not respond. Ping the client again. If it responds suspect the patch cable or the hub. To check the hub, plug the client's patch cord at the hub to another known working port and ping the client again. If it now responds, suspect the hub port. If it still doesn't respond, replace the Ethernet PCB and retest.

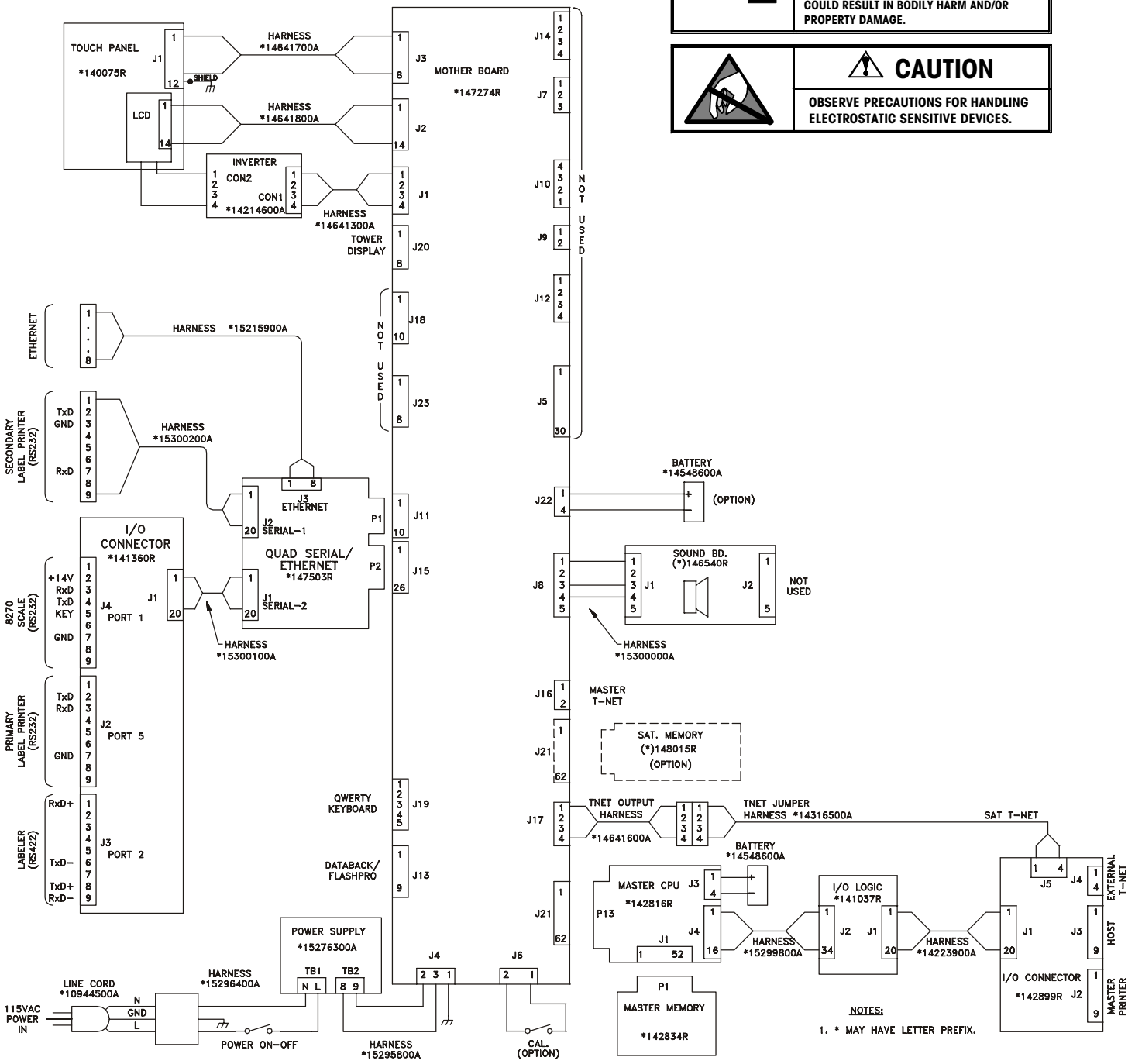
Satellite Interconnect Diagram

WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



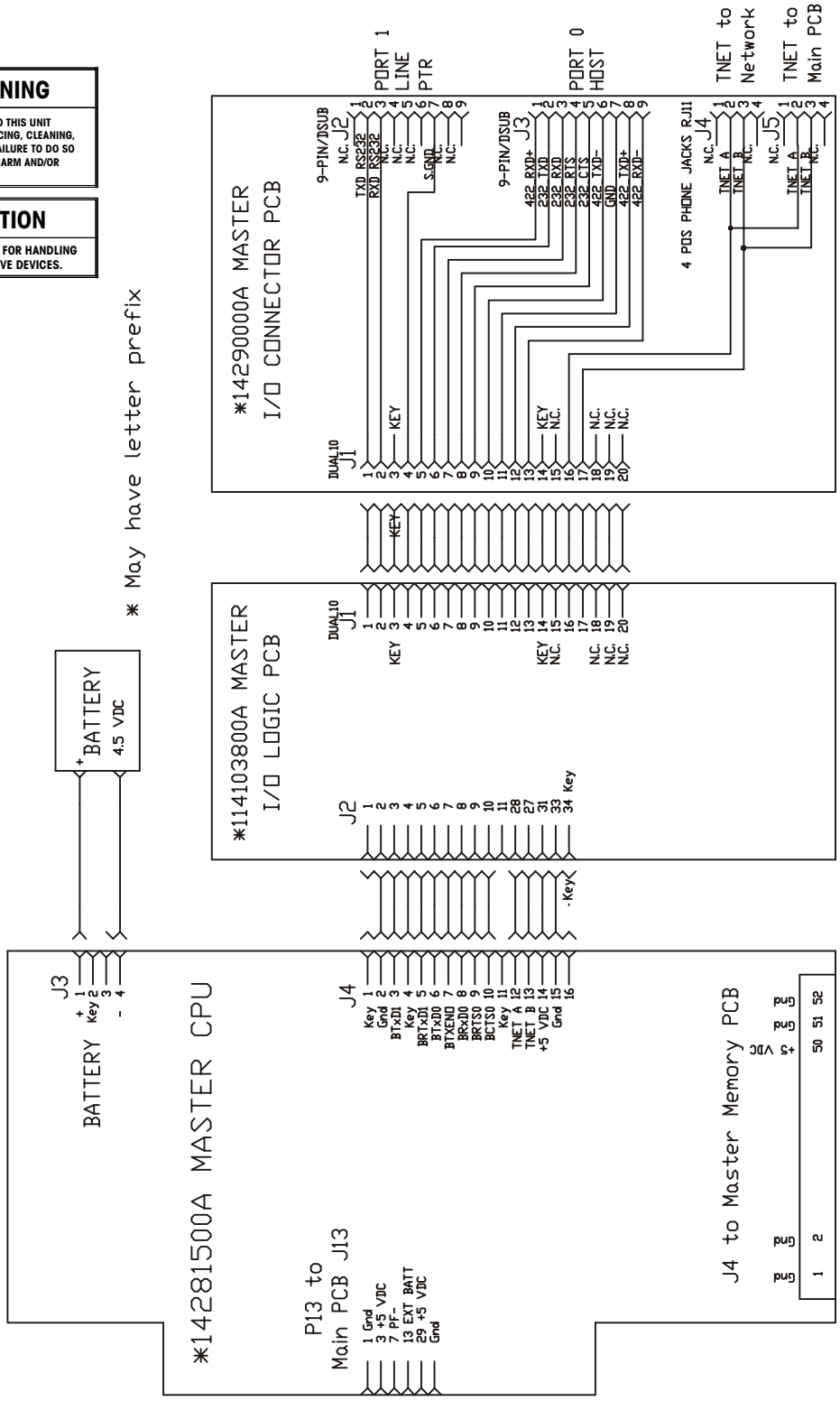
SmartTouch® TNET Master Interconnect Diagram

⚠ WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



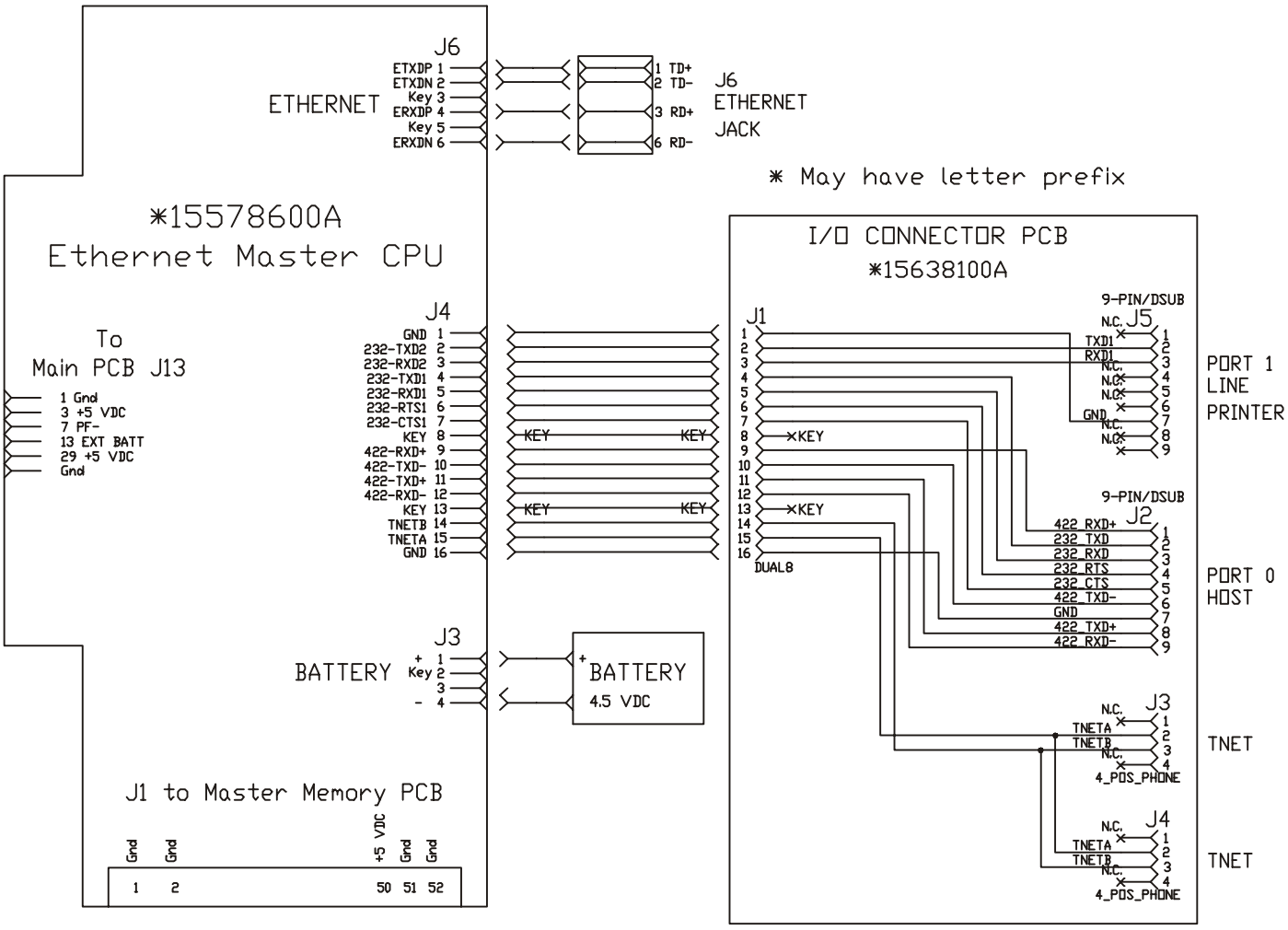
SmartTouch® Ethernet Master (STEM) Interconnect Diagram

⚠ WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



6

Replacement Parts

This chapter lists replacement parts available from METTLER TOLEDO® Aftermarket.

The Aftermarket Operation at METTLER TOLEDO® is dedicated to satisfying every customer every time. The ISO registered facility provides quick, efficient and quality service. Aftermarket services include everything from daily parts shipments and product repairs to load cells and overhaul kits compatible with most scale manufacturers.

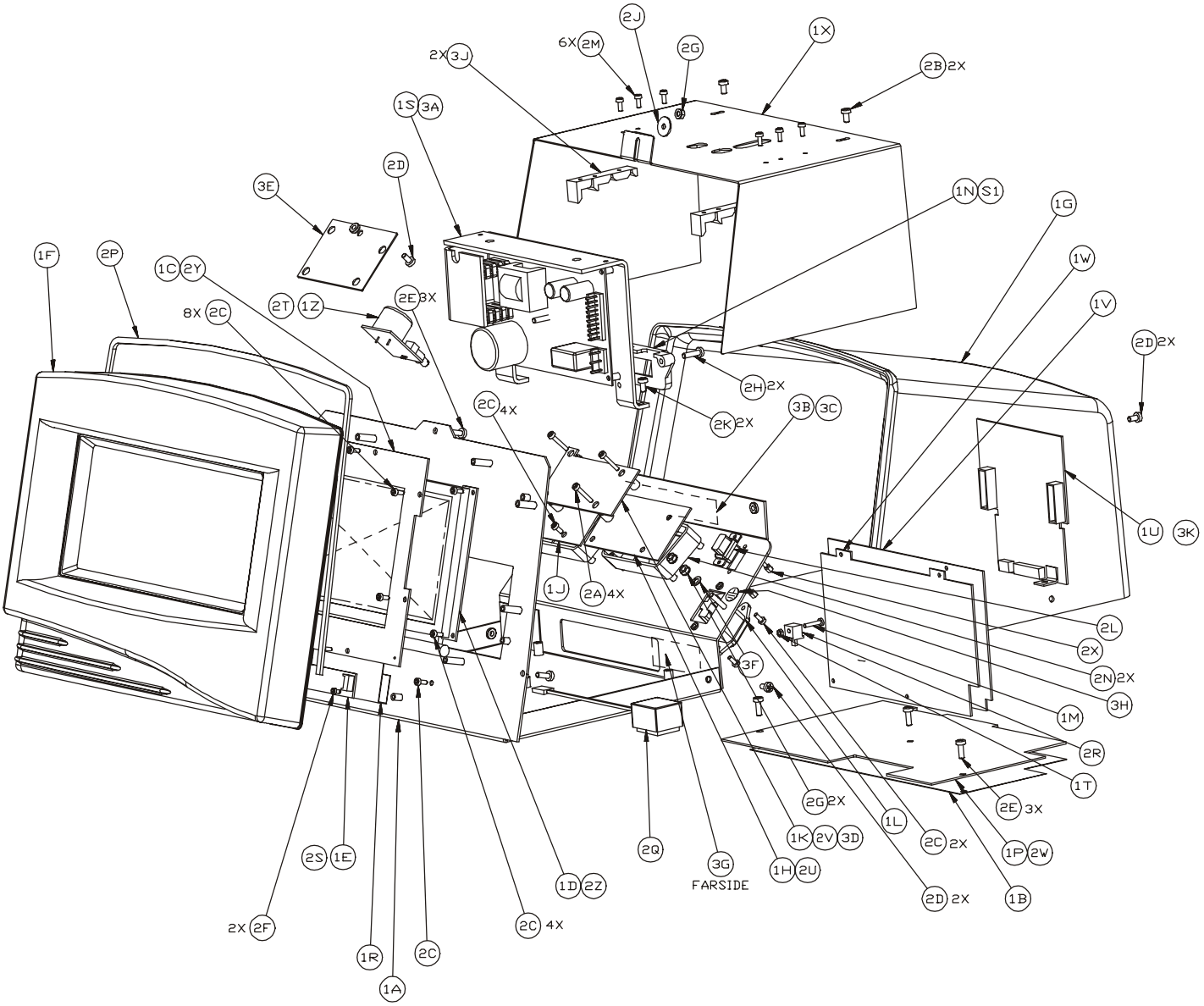
Aftermarket Services:

- Same day replacement parts shipment
- Full service repair center
- Printed circuit board repair and exchange program
- Load cell weighing solutions
- Load cell exchange program
- Mechanical scale overhaul kits
- Rental scales

Mettler-Toledo, Inc.
Aftermarket
60 Collegeview Road
Westerville, Ohio 43081
Tel: (800) 848-3992
(614) 430-2555
Fax: (800) 405-6312
(614) 438-4921

Rental
Tel: (800) 428-4310
Fax: (614) 841-5185
E-mail: rental@mt.com

8361 Illustration



8361 Parts List

COMMON PARTS			
SYM	QTY	PART NUMBER	DESCRIPTION
1A	1	14640400A	CHASSIS ASSEMBLY - CONTROLLER
1B	1	14531100A	INSULATOR, MOTHER PCB
1C	1	D13538300A	PCB ASSY, IR TOUCH PANEL
1D	1	14214500A	LCD PANEL, BACKLIT
1E	1	14214600A	PCB ASSEMBLY, INVERTER
1F	1	A14640200A	FRONT PANEL ASSEMBLY
1G	1	A14640100A	REAR COVER
1J	1	A14136100A	PCB ASSY, I/O CONN (SATELLITE)
1L	1	15296400A	HARNESS, AC POWER IN
1N	1	B14551200A	COVER, SWITCH/CONNECTOR
1P	1	(*)15526100A	PCB ASSEMBLY, MAIN
	1	(*)14727500A	PCB ASSEMBLY, MAIN
1R	1	14247700A	INSULATOR ASSEMBLY, INVERTER
1S	1	15276300A	POWER SUPPLY, UNIV IN, 21VDC
	1	15556000A	POWER SUPPLY ASSY, W/HARN. SW, etc.
1U	1	15214100A	PCB ASSEMBLY, SERIAL,QUAD
1X	1	B14642500A	SHIELD/SUPPORT
1Z	1	14654100A	PCB ASSEMBLY, BEEPER
2B	2	R00848050	SCREW,8-32X5/16 PHILLIPS RD HD
2C	19	R0524700A	SCREW,M3X8 CROSS PAN HD
2D	4	R0520400A	SCREW,M4X8 CROSS PAN HD - SS
2E	6	R0337700A	SCREW,M4X12 CROSS FILLISTER HD
2F	2	R01862050	SCREW,4-40X3/16 PHILLIPS PAN HD
2G	3	R0519600A	HEX NUT, M4 KEPS
2H	2	R01881130	SCREW,8-32X5/8 PHILLIPS PAN HD
2J	1	015383050	WASHER, 0.171 ID X 0.625 OD
2K	2	R0516800A	SCREW,M4X8 CROSS PAN HD
*	4	11133700A	STICK-ON FOOT, .88 DIA.
2L	1	15300200A	HARNESS, PRINTER 2
2N	1	A14641100A	SHROUD, CONNECTOR
2P	30"	14641000A	GASKET, 3/16 X 1/8
2Q	1	14548600A	BATTERY,4.5V,600 mAH
2S	1	14641300A	HARNESS, INVERTER PCB
2T	1	15300000A	HARNESS, BEEPER
2W	1	14641600A	HARNESS, T-NET OUTPUT
2X	1	10856800A	SCREW LOCK KIT
2Y	1	14641700A	HARNESS, IR PCB
2Z	1	14641800A	HARNESS, LCD TOUCHSCREEN
3A	1	15295800A	HARNESS, DC POWER OUT
3B	1	14800000A	DATA LABEL
3C	1	14801800A	SHIELD, DATA LABEL
3F	1	R00589130	LOCKWASHER, #8 INT. TOOTH
3G	1	12699700A	LABEL, WARNING
3H	1	14531400A	LABEL, GROUND
3K	1	15300100A	HARNESS, QUAD SERIAL TO I/O
S1	1	13688900A	SWITCH, ROCKER SPST 10A
*	1	12716300A	PHONE JACK, WALL MOUNT
*	1	12716500A	CABLE, PHONE
*	1	14922800A	SHIELD, CONNECTOR
*	1	R0510000A	SCREW, M4 X 10 DRILLED HD.
*	1	R0259600A	SCREW, 8-32 X 3/8 DRILLED
*	1	14913000A	BRACKET, SEAL, 0355/8361
*	1	14881300A	LABEL,CAPACITY/PREPACK SHEET

* Not shown. Packed with product.

ADD FOR MASTER RAMS 8361-X1XX-XXX			
SYM	QTY	PART NUMBER	DESCRIPTION
1H	1	14290000A	PCB ASSY, I/O CONN (MASTER)
1K	1	14290000A	PCB ASSEMBLY, I/O
1M	1	R01982050	SCREW, 4-40X5/8, CROSS PAN HD
1T	1	R0330500A	NUT, 4-40
1V	1	B14281700A	PCB ASSEMBLY, MASTER CPU
2U	1	14223900A	HARNESS, I/O LOGIC - MASTER
2V	1	15299800A	HARNESS, MASTER I/O,TNET
2A	4	R0524600A	SCREW,M3X20 CROSS PAN HD
2M	6	R0511200A	SCREW, M3 X 8 TAPTITE
2N	1	A14641100A	SHROUD, CONNECTOR
2R	1	15447100A	FOOT, PCB
3D	1	14316500A	HARNESS, T-NET JUMPER
3J	2	15462700A	BRACKET, GUIDE/SUPPORT
*	2	12839300A	RESISTOR, 113 OHM,1/4W,MF
1U	1	15214100A	PCB ASSY, QUAD SERIAL

ADD FOR SATELLITE RAMS 8361-X0XX-XXX			
SYM	QTY	PART NUMBER	DESCRIPTION
3E	1	14642400A	COVER PLATE, I/O CONNECTOR
2D	1	R0520400A	SCREW,M4X8 CROSS PAN HD - SS

ADD FOR LINECORD				
SYM	QTY	PART NUMBER	DESCRIPTION	FACTORY NO.
*	1	10386700A	CORDSET, STRAIGHT - NO. AMERICA	8361-XXXX-000
*	1	14235700A	CORDSET, STRAIGHT - AUSTRALIA	8361-XXXX-000

ADD FOR MASTER MEMORY CAPACITY				
SYM	QTY	PART NUMBER	DESCRIPTION	FACTORY NO.
1W	1	14317100A	PCB ASSY, MASTER MEMORY - 512K	8361-1XXX-XXX
1W	1	14317200A	PCB ASSY, MASTER MEMORY - 1M	8361-2XXX-XXX
1W	1	14317300A	PCB ASSY, MASTER MEMORY - 2M	8361-3XXX-XXX
1W	1	14283500A	PCB ASSY, MASTER MEMORY - 4M	8361-4XXX-XXX
1W	1	15077500A	PCB ASSY, MASTER MEMORY - 8M	8361-5XXX-XXX
1W	1	15077600A	PCB ASSY, MASTER MEMORY - 16M	8361-6XXX-XXX

(*) = May have letter prefix.

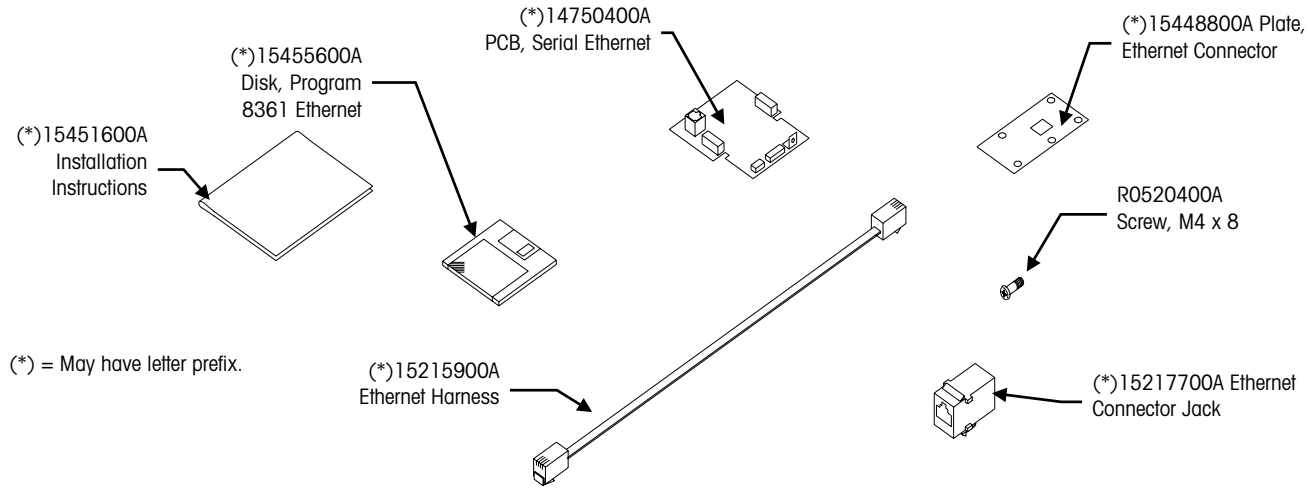
Ethernet Parts

Serial and Ethernet Interface

Model: 8361
Kit Number: 0977-0070
Description: Serial and Ethernet Interface Kit

Kit Description

This kit will convert the Model 8361 to allow connection to an Ethernet Network using 10 Base-T wiring in a star or tree topology. The kit contents are shown below.

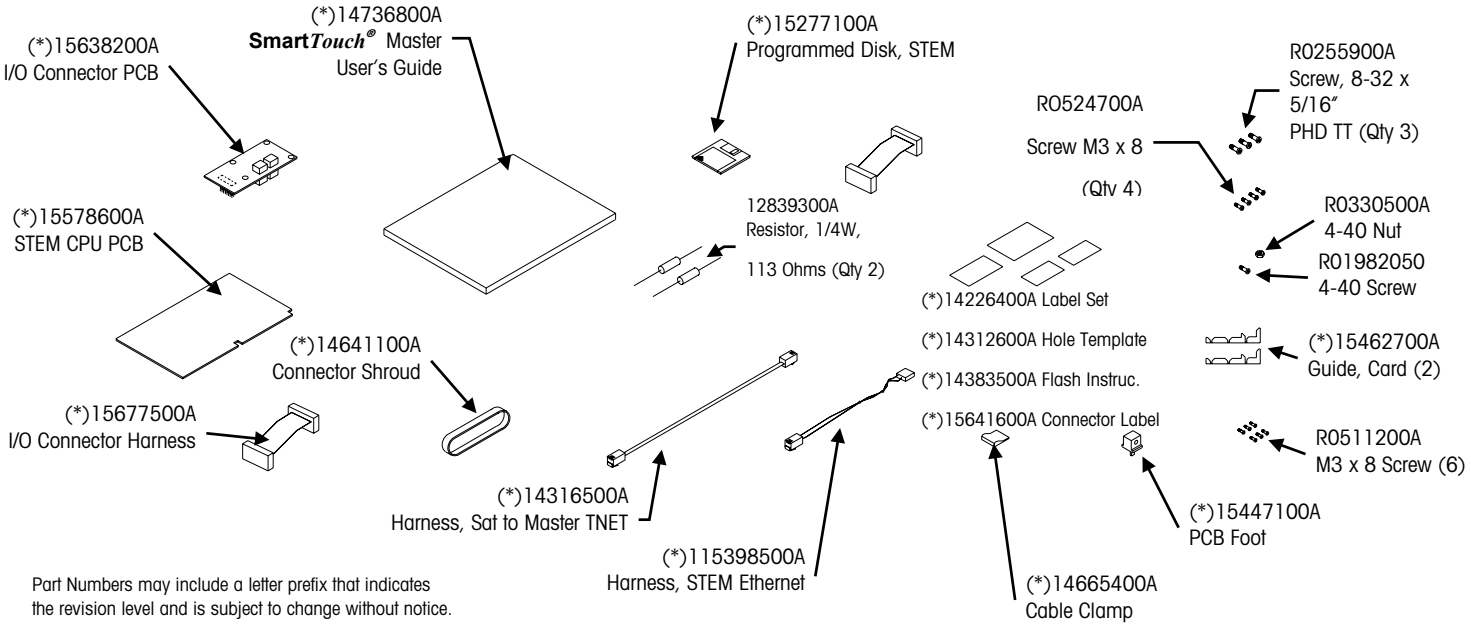


0977-0070 Kit Contents

STEM (SmartTouch® Ethernet Master)

Description: STEM (Smart*Touch*® Ethernet Master) Kit
Kit Number: 0977-0082
For Model: 8361, 8460, and 8461

This kit, plus a Memory PCB Kit (Note 1) adds the STEM (**Smart***Touch*® Ethernet Master) to the Model 8361 (March 1, 1999 date code CA or later), the Model 8460 (January 1, 1993 date code NU or later), and to the Model 8461(all). The kit contents are shown below.



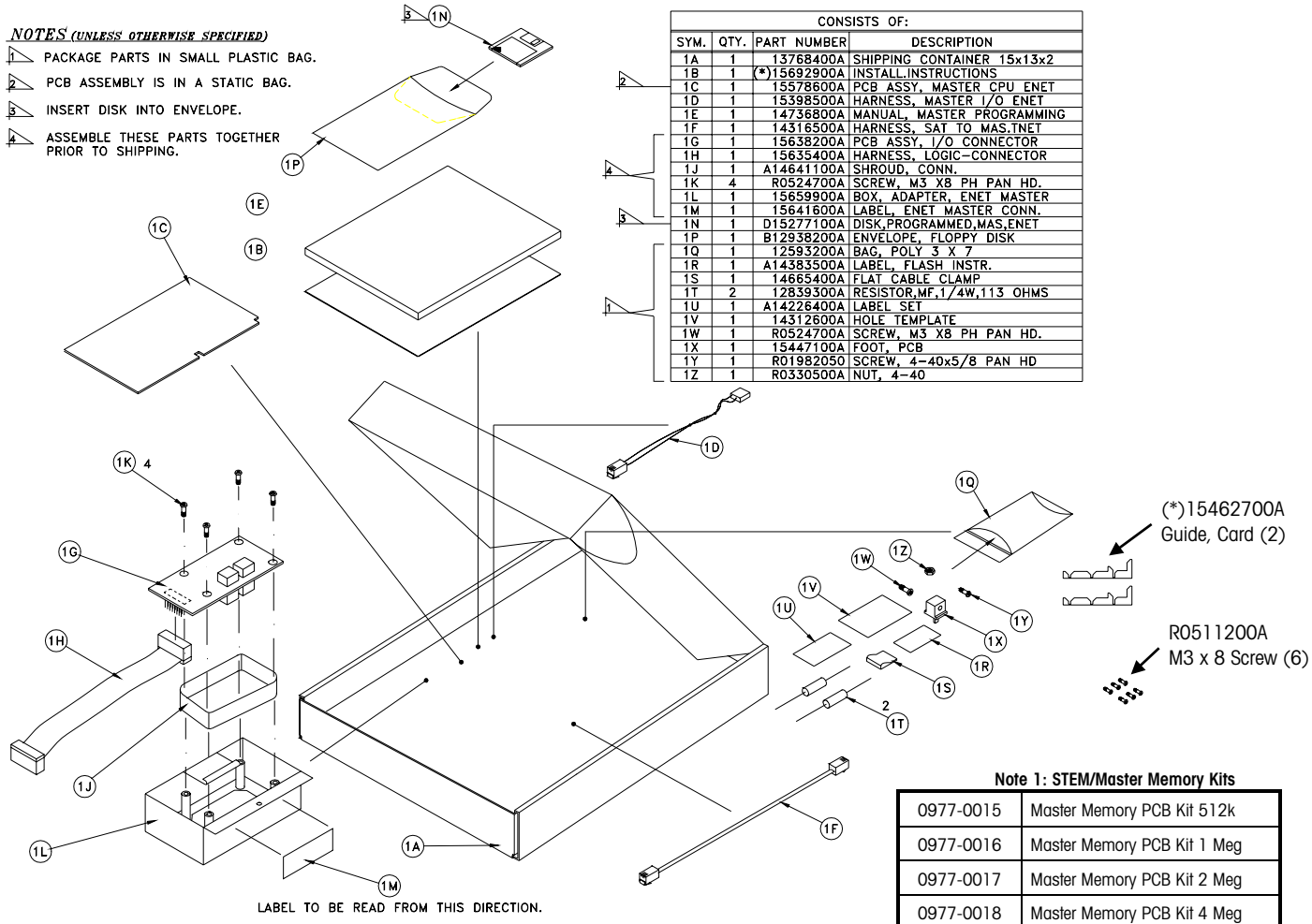
Part Numbers may include a letter prefix that indicates the revision level and is subject to change without notice.

STEM Kit Contents

STEM (SmartTouch® Ethernet Master) on Old Base

Description: STEM (Smart*Touch*® Ethernet Master) Kit
Kit Number: 0977-0085
Model: 8360/8361

This kit and a Master Memory Kit will add the STEM (**Smart*Touch*® Ethernet Master)** to the Model 8360 or 8361. This kit is for units manufactured before March 1, 1999 (Date Code BA or earlier). The STEM kit includes the components shown below.



CONSISTS OF:

SYM.	QTY.	PART NUMBER	DESCRIPTION
1A	1	13768400A	SHIPPING CONTAINER 15x13x2
1B	1	(*)15692900A	INSTALL.INSTRUCTIONS
1C	1	15578600A	PCB ASSY, MASTER CPU ENET
1D	1	15398500A	HARNESS, MASTER I/O ENET
1E	1	14736800A	MANUAL, MASTER PROGRAMMING
1F	1	14316500A	HARNESS, SAT TO MAS.TNET
1G	1	15638200A	PCB ASSY, I/O CONNECTOR
1H	1	15635400A	HARNESS, LOGIC-CONNECTOR
1J	1	A14641100A	SHROUD, CONN.
1K	4	R0524700A	SCREW, M3 X8 PH PAN HD.
1L	1	15659900A	BOX, ADAPTER, ENET MASTER
1M	1	15641600A	LABEL, ENET MASTER CONN.
1N	1	D152771100A	DISK,PROGRAMMED,MAS,ENET
1P	1	B12938200A	ENVELOPE, FLOPPY DISK
1Q	1	12593200A	BAG, POLY 3 X 7
1R	1	A14383500A	LABEL, FLASH INSTR.
1S	1	14665400A	FLAT CABLE CLAMP
1T	2	12839300A	RESISTOR,MF,1/4W,113 OHMS
1U	1	A14226400A	LABEL SET
1V	1	14312600A	HOLE TEMPLATE
1W	1	R0524700A	SCREW, M3 X8 PH PAN HD.
1X	1	15447100A	FOOT, PCB
1Y	1	R01982050	SCREW, 4-40x5/8 PAN HD
1Z	1	R0330500A	NUT, 4-40

Note 1: STEM/Master Memory Kits

0977-0015	Master Memory PCB Kit 512k
0977-0016	Master Memory PCB Kit 1 Meg
0977-0017	Master Memory PCB Kit 2 Meg
0977-0018	Master Memory PCB Kit 4 Meg
0977-0040	Master Memory PCB Kit 8 Meg
0977-0041	Master Memory PCB Kit 16 Meg

One of the above listed Memory Kits is required with the 0977-0086 kit.

0977-0085 STEM (Smart*Touch*® Ethernet Master Kit for Model 8361)

Ethernet RF

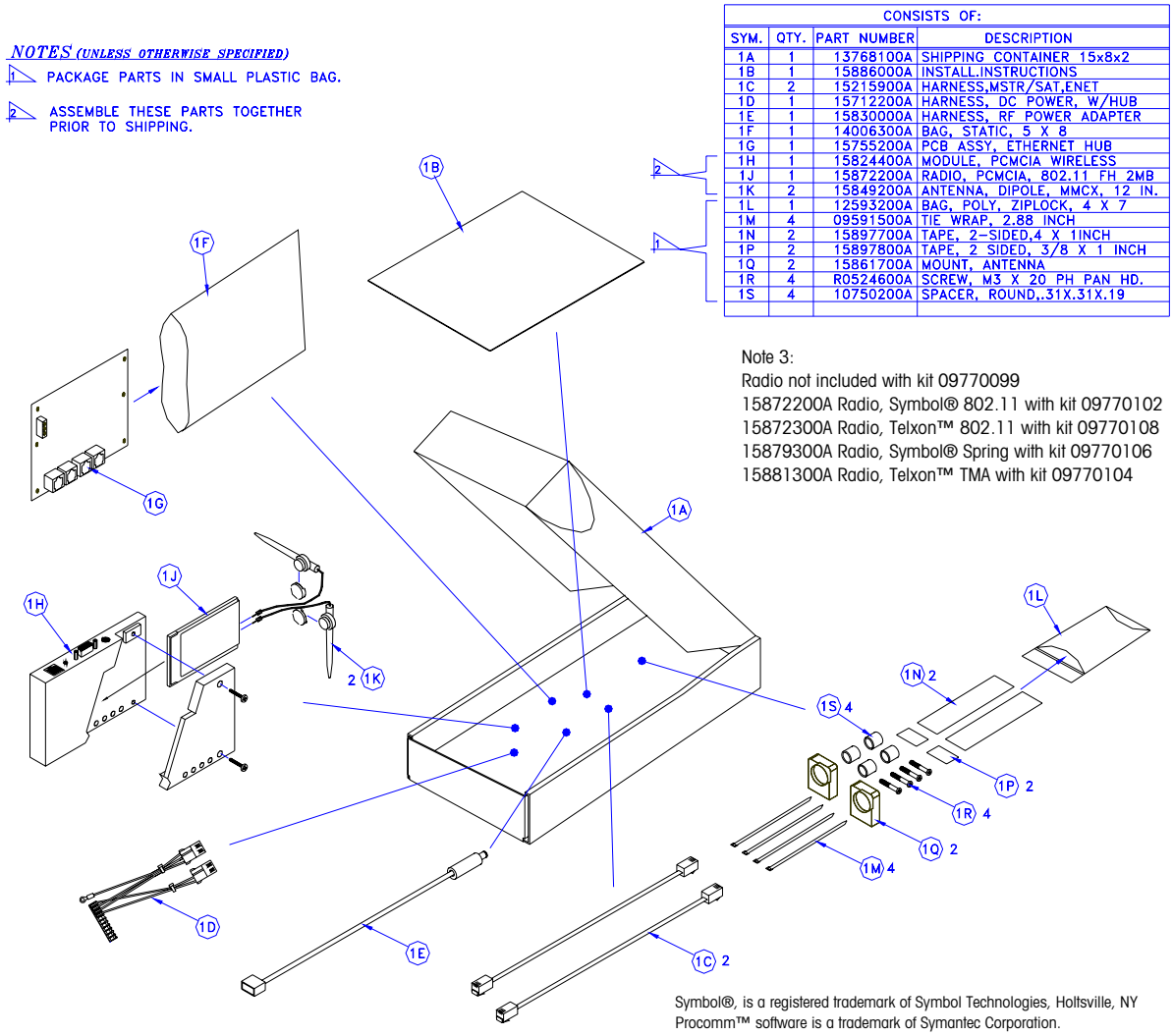
Model: 8361 and STEM
Kit Number: 0977-00XX (See below)
Description: Ethernet RF Upgrade Kit

This kit will upgrade the Model 8361 Ethernet Client or STEM (**Smart*Touch*®** Ethernet Master) to use an Ethernet RF (radio frequency) receiver/transmitter that communicates through the store's Access Point via radio waves. These instructions cover the following kit numbers:

09770100 - 8361 RF-Ready Upgrade Kit (radio not included)
09770102 - 8361 Upgrade Kit with Symbol® 802.11 FH radio
09770104 - 8361 Upgrade Kit with Telxon™ 2.4 DS TMA radio
09770106 - 8361 Upgrade Kit with Symbol® Spring radio
09770108 - 8361 Upgrade Kit with Telxon™ 802.11 DS radio

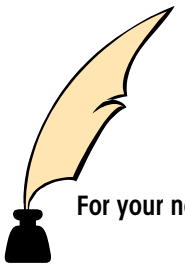
Parts List

The illustration below shows the parts shipped with the different kits. Note that kit 09770100 does not include the radio. All of the other kits are the same as the 09770100 with the addition of the specific radio shipped with the kit.



CONSISTS OF:			
SYM.	QTY.	PART NUMBER	DESCRIPTION
1A	1	13768100A	SHIPPING CONTAINER 15x8x2
1B	1	15886000A	INSTALL.INSTRUCTIONS
1C	2	15215900A	HARNESS,MSTR/SAT,ENET
1D	1	15712200A	HARNESS, DC POWER, W/HUB
1E	1	15830000A	HARNESS, RF POWER ADAPTER
1F	1	14006300A	BAG, STATIC, 5 X 8
1G	1	15755200A	PCB ASSY, ETHERNET HUB
1H	1	15824400A	MODULE, PCMCIA WIRELESS
1J	1	15872200A	RADIO, PCMCIA, 802.11 FH 2MB
1K	2	15849200A	ANTENNA, DIPOLE, MMCX, 12 IN.
1L	1	12593200A	BAG, POLY, ZIPLOCK, 4 X 7
1M	4	09591500A	TIE WRAP, 2.88 INCH
1N	2	15897700A	TAPE, 2-SIDED,4 X 1INCH
1P	2	15897800A	TAPE, 2 SIDED, 3/8 X 1 INCH
1Q	2	15861700A	MOUNT, ANTENNA
1R	4	R0524600A	SCREW, M3 X 20 PH PAN HD.
1S	4	10750200A	SPACER, ROUND,.31X.31X.19

Note 3:
Radio not included with kit 09770099
15872200A Radio, Symbol® 802.11 with kit 09770102
15872300A Radio, Telxon™ 802.11 with kit 09770108
15879300A Radio, Symbol® Spring with kit 09770106
15881300A Radio, Telxon™ TMA with kit 09770104



For your notes

7 Sample Label Formats

The default label formats are illustrated in this chapter.

2.1″ Labels

There are 6 default 2.1″ label formats. Three require label stock that is pre-printed with the Net Wt./Count, Unit Price and Total Price fields. There is also room for a pre-printed store logo. The other 3 formats require blank label stock. The 2.1″ label formats do not include safe handling graphics or nutrition facts. Note: The labels are not to scale.

2.1″ By-Weight Label Formats

NAME 2.1" BY-WEIGHT pre-printed label stock (Store Logo, Total Price box, Unit Price) Style Numbers: 0, 1, 4, 5, 6, 7

NAME 2.1" BY-WGT BLNK/LBL STK Use blank label stock. Total Price Box, Legends, and Store logo will be printed on the label by the printer. Style Numbers: 1, 2

2.1" By-Count Label Formats

NAME 2.1" BY-COUNT Pre-printed label stock (store logo, Total Price box, Net Wt/Count, Unit Price) Style Numbers: 0, 1, 4, 5, 6, 7

NAME 2.1" BY-CNT BLNK/LBL STK Use blank label stock. Total Price Box, Legends, and Store Logo will be printed on the label by the printer. Style Numbers: 2, 3

2.1" Standard Pack Label Formats

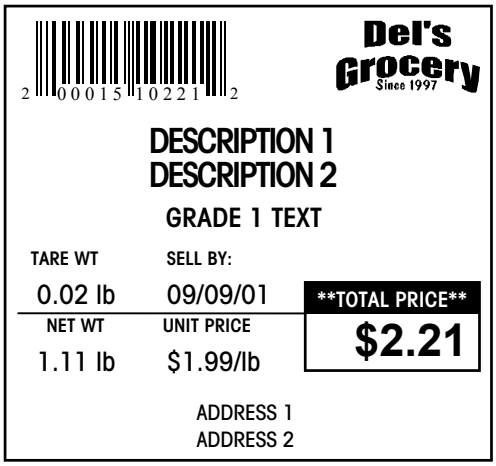
NAME 2.1" STANDARD PACK Pre-printed label stock (store logo, Total Price box, Net Wt/Count, Unit Price) Style Numbers: 0, 1, 4, 5, 6, 7

NAME 2.1" STD/PK BLNK/LBL STK Use blank label stock. Total Price box, Legends, and Store logo will be printed on the label by the printer. Style Numbers: 2, 3

2.4"Labels

There are seventeen default 2.4" label formats: 6 for By Weight, 6 for By Count and 5 for Standard Pack PLUs. This label size can hold safe handling graphics but not Nutrition Facts. The 2.4" sample labels are shown using pre-printed label stock. The store logo was already printed in the upper right hand corner. These labels are not drawn to scale.

2.4" By-Weight Label Formats



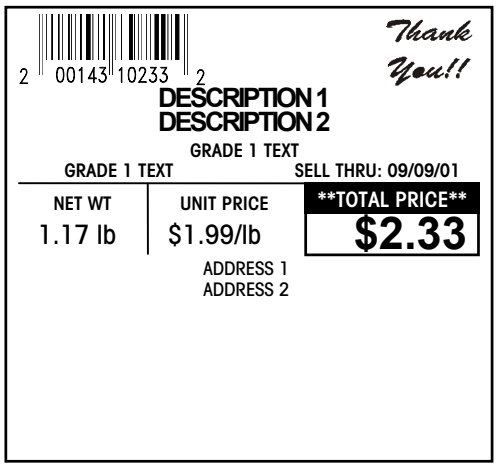
NAME 2.4" DATA BY-WT
Style Numbers: 0, 7

NAME 2.4" ET BY-WT Extra Text included.
Style Numbers: 1, 6

NAME 2.4" ET W/L-GHP BY-WT Extra Text included. Linked Graphic included.
Style Numbers: 2

NAME 2.4" ET W/S-GHP BY-WT Extra Text included. Satellite Graphic included.
Style Numbers: 3

NAME 2.4" W/SH BY-WT Safe Handling graphic printed by printer.
Style Numbers: 4



NAME 2.4" P-PRT SH BY-WT Blank area left for Safe Handling graphic pre-printed on the label.
Style Numbers: 5

2.4" By-Count Label Formats

NAME 2.4" DATA BY-CT
Style Numbers: 0, 7

NAME 2.4" ET BY-CT Extra Text included. Style Numbers: 1, 6

NAME 2.4" ET W/L-GHP BY-CT Extra Text included. Linked Graphic included.
Style Numbers: 2

NAME 2.4" ET W/S-GHP BY-CT Extra Text included. Satellite Graphic included.
Style Numbers: 3

NAME 2.4" W/SH BY-CT Safe Handling graphic printed by printer. Style Numbers: 4

NAME 2.4" P-PRT SH BY-CT Blank area left for Safe Handling graphic pre-printed on the label.
Style Numbers: 5

2.4" Standard Pack Label Formats

NAME 2.4" DATA STD PK
Style Numbers: 0, 7

NAME 2.4" ET STD PK Extra Text included.
Style Numbers: 1, 6

NAME 2.4" ET W/L-GHP STD PK Extra Text included. Linked Graphic included.
Style Numbers: 2

NAME 2.4" ET W/S-GHP STD PK Extra Text included. Satellite Graphic included.
Style Numbers: 3

NAME 2.4" W/SH STD PK (X-SH) Safe Handling graphic printed by printer. Style Numbers: 4

3.3" Labels

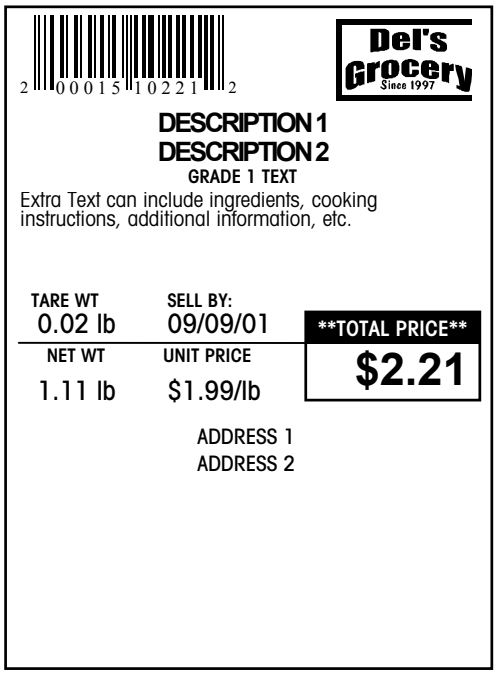
There are 15 default 3.3" label formats; five of each PLU type. Safe handling graphics may be included on a 3.3" label along with a store logo but no linked or satellite graphics will fit at the same time. Nutrition Facts are not available on 3.3" labels. Blank label stock should be used, but pre-printed store logo label stock can be used if no store logo graphic is defined. The sample labels are not drawn to scale.

3.3" By-Weight Label Formats

NAME 3,3" ET BY-WT Extra Text included. Style Numbers: 0,1, 6, 7

NAME 3.3" LINK-GRAPH BY-WT Extra Text included. Style Numbers: 2

NAME 3.3" ET W/SAT-GRAPH BY-WT Extra Text included. Satellite Graphic included. Style Numbers: 3



NAME 3.3" P-PRT SH BY-WT Extra Text included. Blank area left for Safe Handling graphic pre-printed on the label.
Style Numbers: 5

NAME 3.3" W/SH BY-WT Extra Text included. Safe Handling graphic printed by the printer.
Style Numbers: 4

3.3" By-Count Label Formats

NAME 3.3" ET BY-CT Extra Text included.
Style Numbers: 0, 1, 6, 7

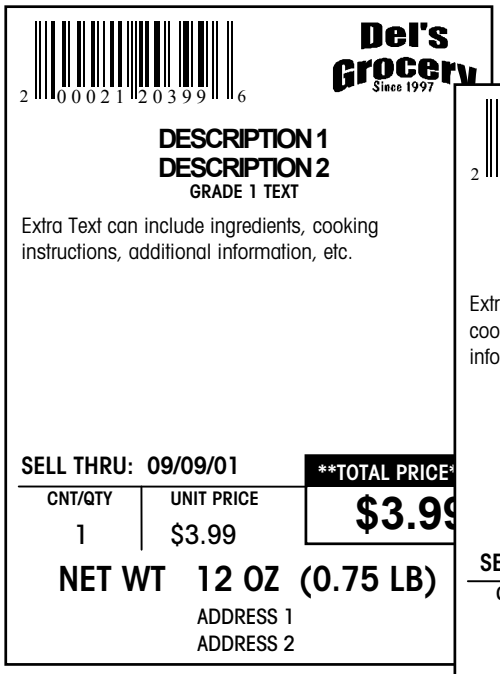
NAME 3.3" LINK-GRAPH BY-CT Extra Text included. Linked Graphic included.
Style Numbers: 2

NAME 3.3" ET/SAT-GRAPH BY-CT Extra Tex included. Satellite Graphic included.
Style Numbers: 3

NAME 3.3" W/SH BY-CT Extra Text included. Safe Handling Graphic printed by printer.
Style Numbers: 4

NAME 3.3" P-PRT SH BY-CT Extra Text included. Blank area for pre-printed Safe Handling graphic.
Style Numbers: 5

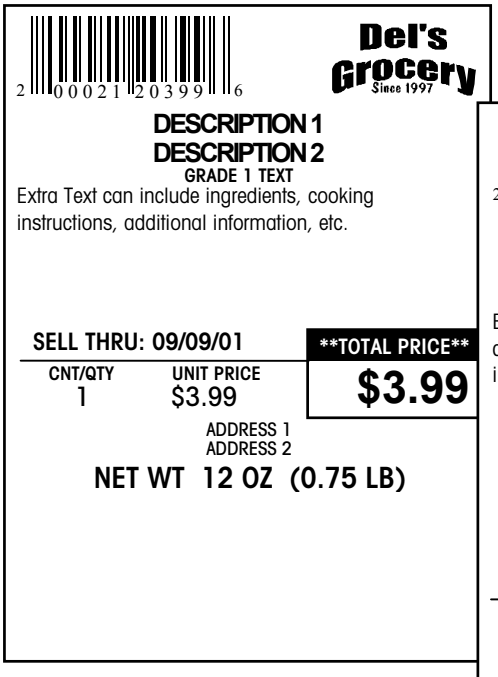
3.3" Standard Pack Label Formats



NAME 3.3" STD PK Extra Text included.
Style Numbers: 0, 1, 6, 7

NAME 3.3" LINK-GRAPH STD PK Extra Text included. Linked Graphic included.
Style Numbers: 2

NAME 3.3" W/SH STD PK Extra Text included. Safe Handling graphic printed on the label.
Style Numbers: 3



NAME 3.3" P-PRT SH STD PK Extra Text included. Blank area left for pre-printed Safe Handling graphic.
Style Numbers: 5

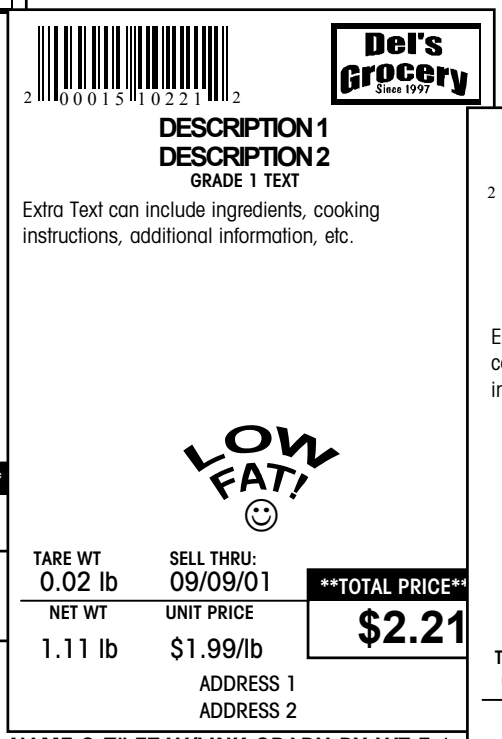
NAME 3.3" ET/SAT-GRAPH STD PK Extra Text included. Satellite Graphic included.
Style Numbers: 3

3.7" Labels

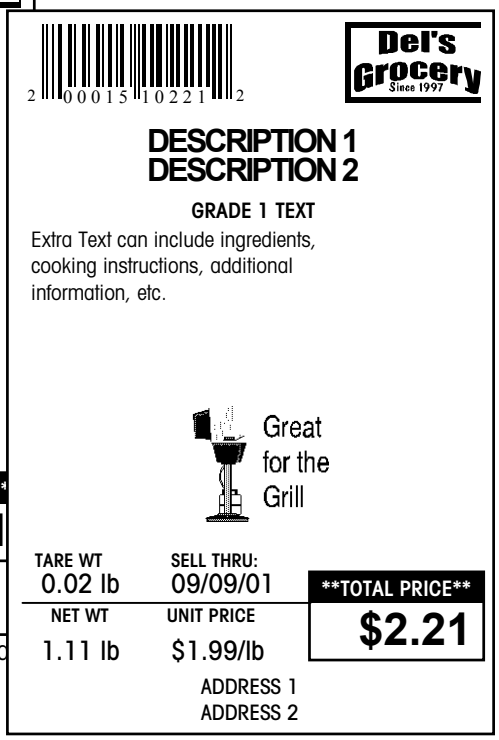
There are 18 default 3.7" label formats. All of them can be printed on blank or pre-printed label stock. Nutrition Facts can be printed on 3.7" labels. The combination of safe handling, satellite or linked graphic and a store logo are also available in this size. These labels are not drawn to scale.

3.7" By-Weight Formats

NAME 3,7" ET BY-WT Extra Text included.
Style Numbers: 0,1, 7



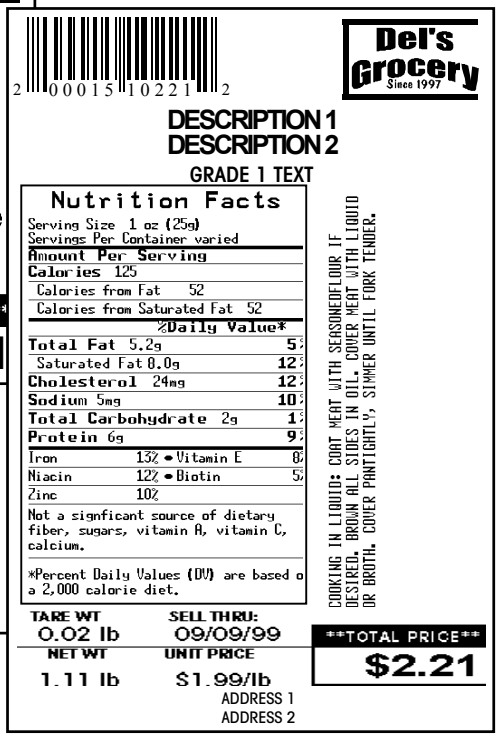
NAME 3.7" ET W/LINK GRAPH BY-WT Extra Text included. Linked Graphic Included.
Style Numbers: 2



NAME 3.7" ET W/SAT-GRAPH BY-WT Extra Text included. Satellite Graphic included.
Style Numbers: 3

NAME 3.7" W/SAT GRAPH & SH BY-WT
Extra Text included. Satellite Graphic and Safe Handling graphic printed by the printer
Style Numbers: 4

NAME 3.7" P-PRT SH BY-WT ET and Sat Graphic included. Blank area left for Safe Handling graphic pre-printed on the label.
Style Numbers: 5



NAME 3.7" 1-LABEL NF BY-WT Extra Text and Nutrition Facts included.

3.7" By-Count Formats

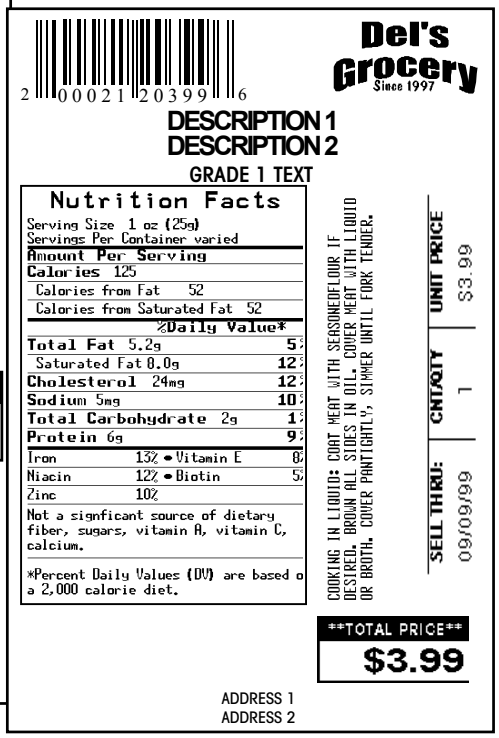
NAME 3.7" ET BY-CT Extra Text included.
Style Numbers: 0, 1, 6, 7

NAME 3.7" LINK-GRAPH BY-CT Extra Text included. Linked Graphic included.
Style Numbers: 2

NAME 3.7" ET W/SAT-GRAPH BY-CT Extra Text included. Satellite Graphic included.
Style Numbers: 3

NAME 3.7" W/SAT-GRAPH & SH BY-CT ET included. Safe Handling Graphic printed by printer. Satellite Graphic included.
Style Numbers: 4

NAME 3.7" P-PRT SH SAT-GRAPH BY-CT ET and Sat Graphic included. Blank area for pre-printed Safe Handling graphic.
Style Numbers: 5



NAME 3.7" 1-LABEL NF BY-CT Extra Text and Nutrition Facts included.
Style Numbers: 6

3.7" Std. Pack Formats

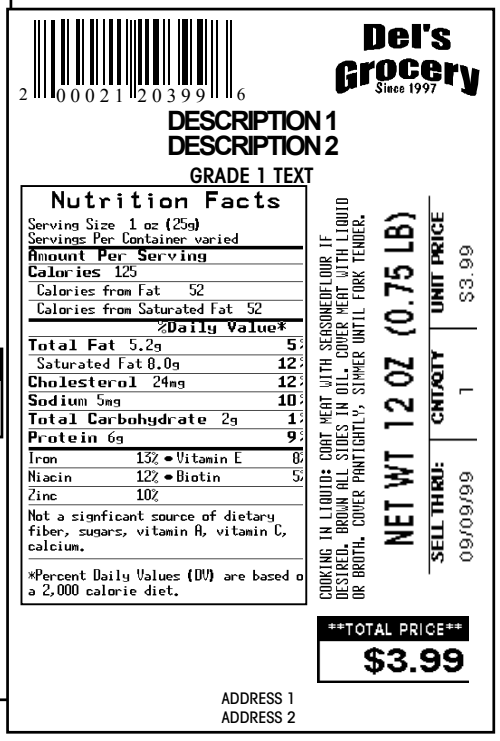
NAME 3.7" STD PK Extra Text included.
Style Numbers: 0, 1, 7

NAME 3.7" ET W/LINK-GRAPH STD PK ET included. Linked Graphic included.
Style Numbers: 2

NAME 3.7" ET W/SAT-GRAPH STD PK Extra Text included. Satellite Graphic included.
Style Numbers: 3

NAME 3.7" W/SH STD PK Extra Txt included. Safe Handling graphic printed on the label.
Style Numbers: 4

NAME 3.7" P-PRT SH SAT-GRAPH STD PK Extra Txt and Sat Graphic included. Blank area for pre-printed Safe Handling graphic.
Style Numbers: 5



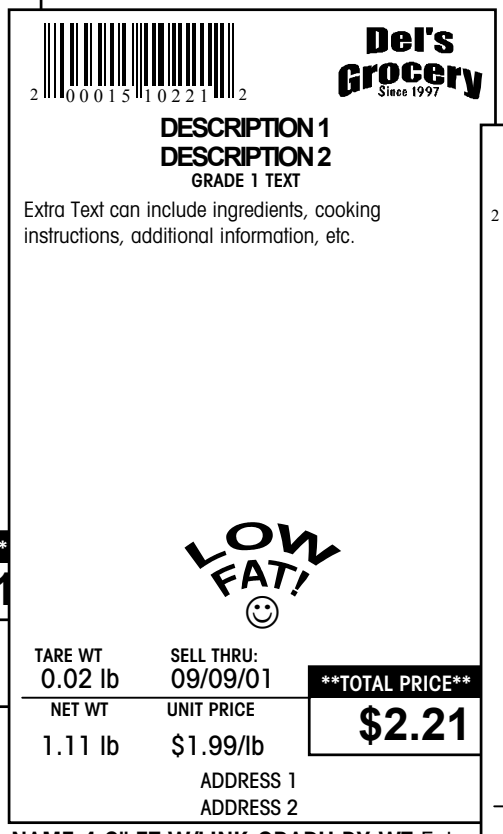
NAME 3.7" 1-LABEL NF BY-CT Extra Text and Nutrition Facts included.
Style Numbers: 6

4.2" Labels

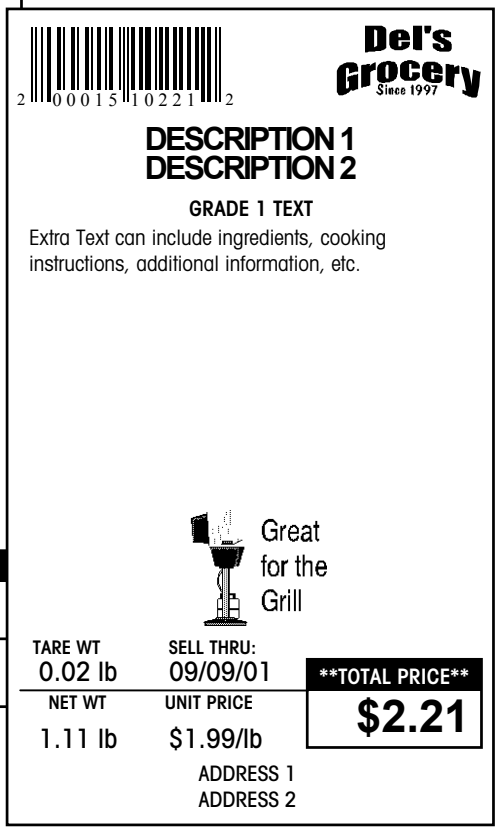
There are eighteen default 4.2" label formats: 6 each of By-Weight, By-Count and Standard Pack. All of them can be printed on blank or pre-printed label stock. Nutrition Facts can be printed on 4.2" labels. This label size also allows the combination of safe handling, satellite or linked graphic and a store logo all on one label. These labels are not drawn to scale.

4.2" By-Weight Label Formats

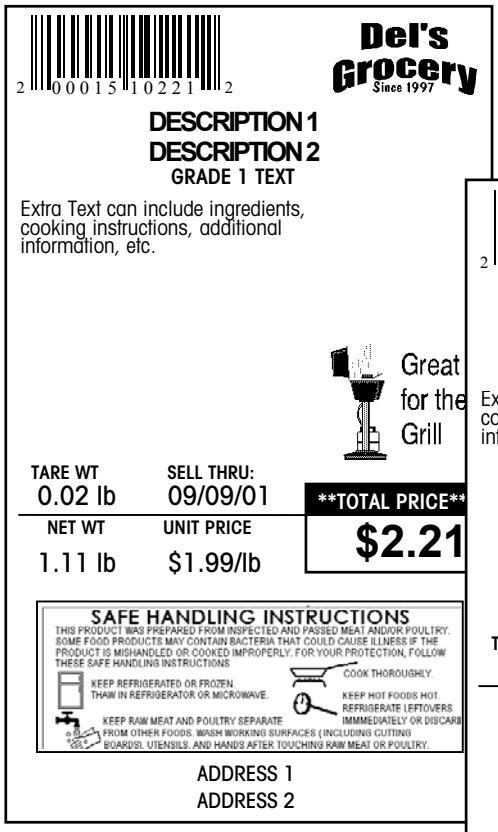
NAME 4,2" ET BY-WT Extra Text included.
Style Numbers: 0,1, 7



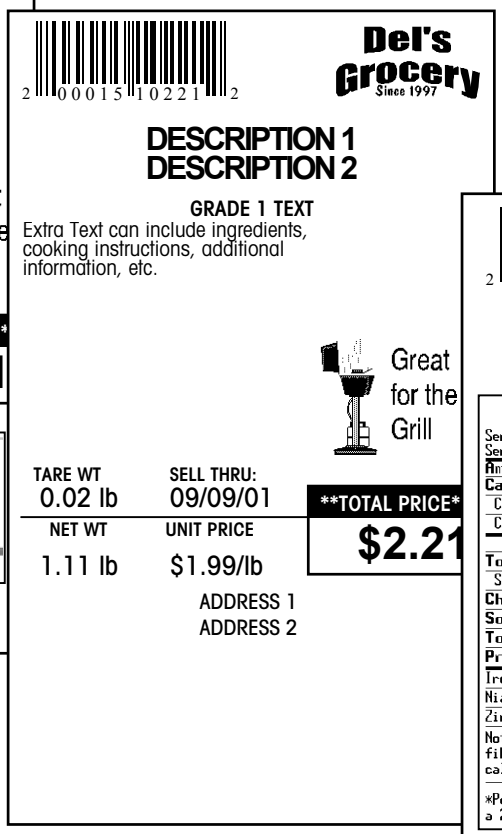
NAME 4.2" ET W/LINK-GRAPH BY-WT Extra Text included. Linked Graphic Included.
Style Numbers: 2



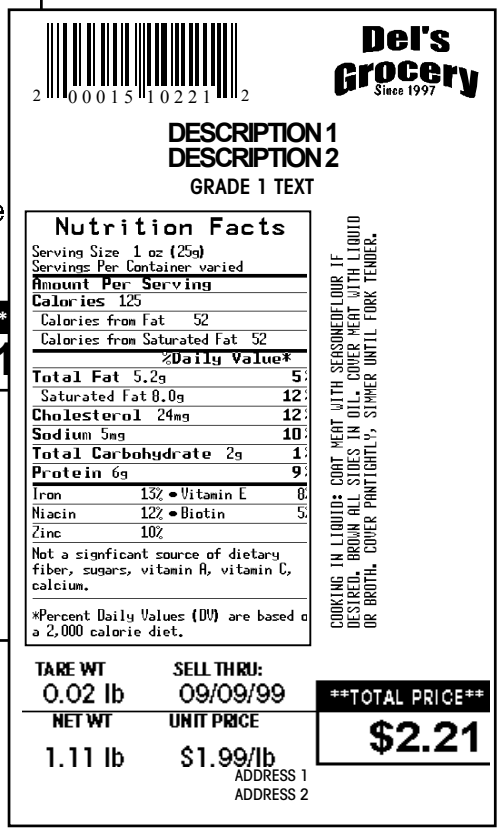
NAME 4.2" ET SAT-GRAPH BY-WT Extra Text included. Satellite Graphic included.
Style Numbers: 3



NAME 4.2" SH/SAT GRAPH BY-WT Extra Txt included. Safe Handling graphic printed by the printer.
Style Numbers: 4

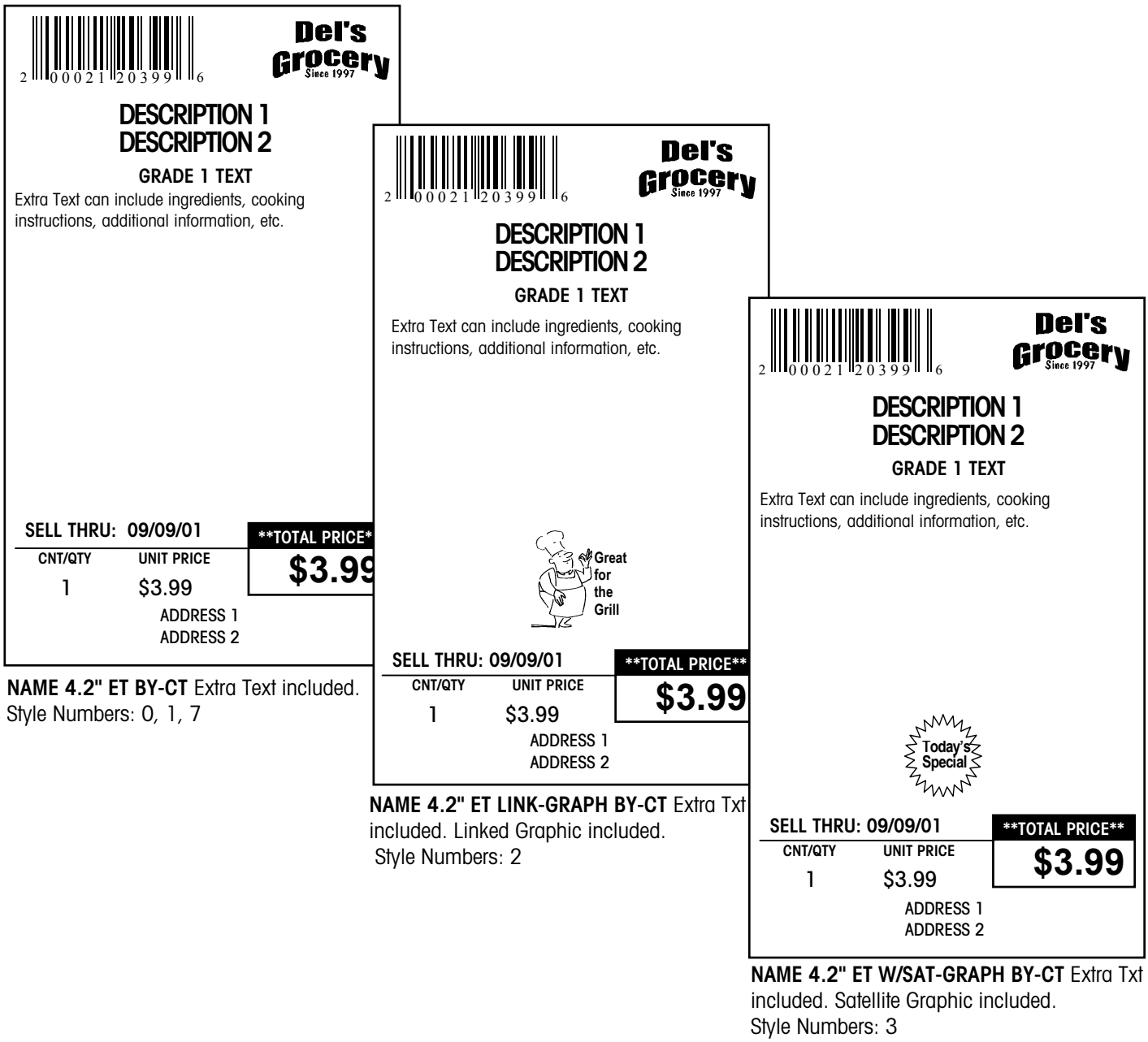


NAME 4.2" P-PRT SH BY-WT Extra Txt and Sat Graphic included. Blank area left for Safe Handling graphic pre-printed on the label.
Style Numbers: 5



NAME 4.2" 1-LABEL NF BY-WT Extra Text and Nutrition Facts included.
Style Numbers: 6

4.2" By-Count Label Formats

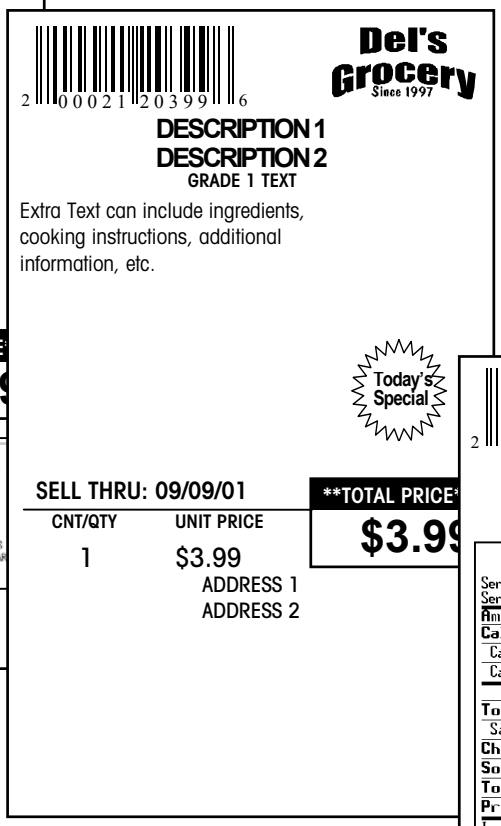


NAME 4.2" ET BY-CT Extra Text included.
Style Numbers: 0, 1, 7

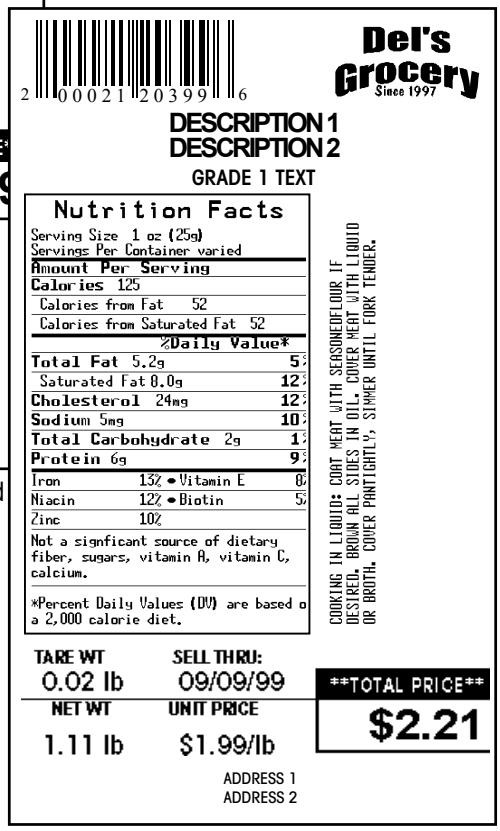
NAME 4.2" ET LINK-GRAPH BY-CT Extra Txt included. Linked Graphic included.
Style Numbers: 2

NAME 4.2" ET W/SAT-GRAPH BY-CT Extra Txt included. Satellite Graphic included.
Style Numbers: 3

NAME 4.2" SH/SAT GRAPH BY-CT ET included. Safe Handling Graphic printed by printer. Satellite Graphic included.
Style Numbers: 4



NAME 4.2" P-PRT SH BY-CT Extra Txt and Sat Graphic included. Blank area for pre-printed Safe Handling graphic.
Style Numbers: 5



NAME 4.2" 1-LABEL NF BY-CT Extra Text and Nutrition Facts included.
Style Numbers: 6

4.2" Standard Pack Label Formats

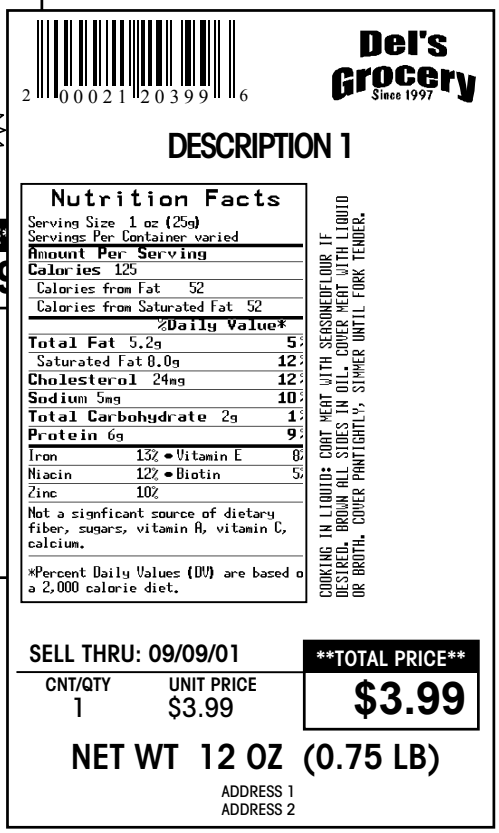
NAME 4.2" ET STD PK Extra Text included.
Style Numbers: 0, 1, 7

NAME 4.2" ET W/LINK-GRAPH STD PK ET included. Linked Graphic included.
Style Numbers: 2

NAME 4.2" ET W/SAT-GRAPH STD PK Extra Text included. Satellite Graphic included.
Style Numbers: 3

NAME 4.2" W/SAT-GRAPH & SH STD PK ET & Satellite Graphic included. Safe Handling graphic printed on the label by the printer.
Style Numbers: 4

NAME 4.2" P-PRT SAT-GRAPH & SH STD PK Extra Text and Satellite Graphic included. Blank area left for pre-printed Safe Handling graphic.
Style Numbers: 5

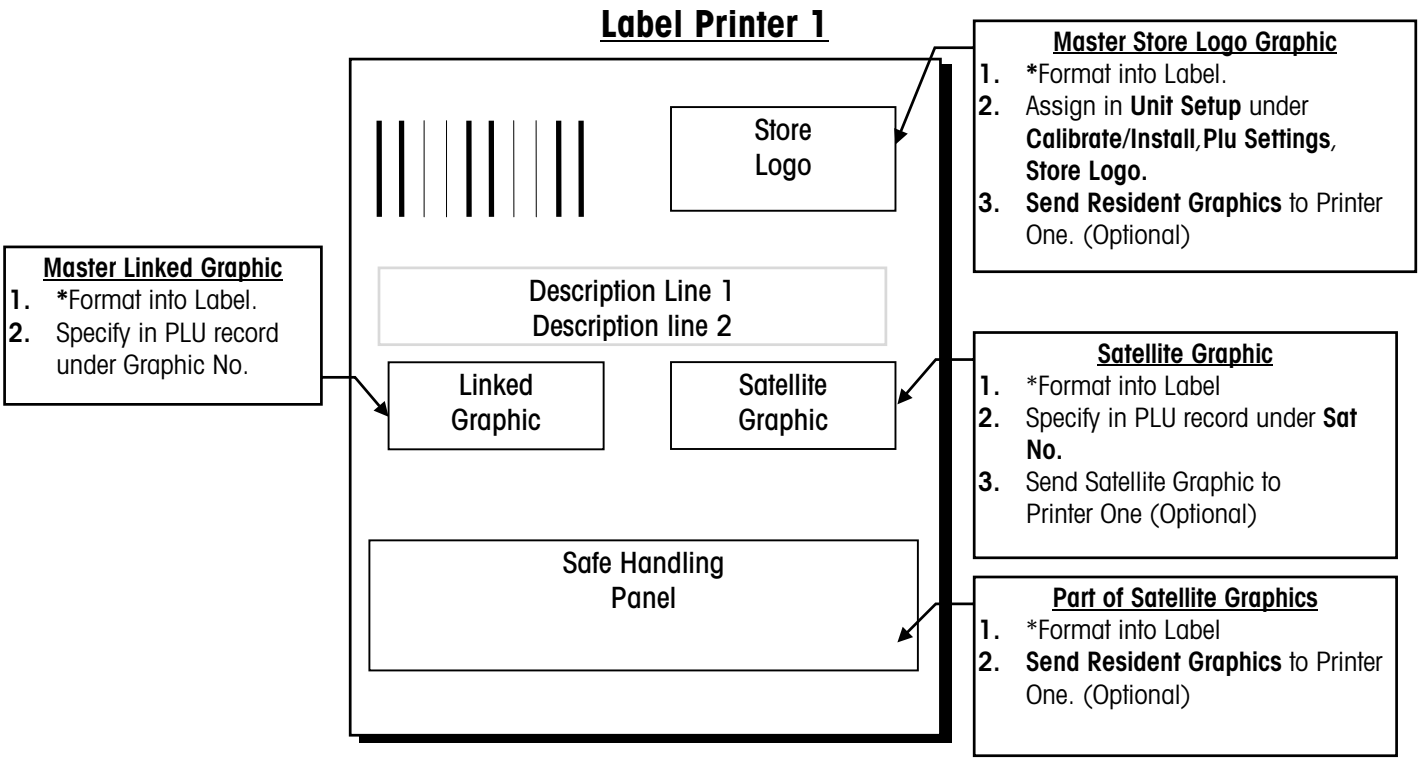


NAME 4.2" 1-LABEL NF BY-CT Extra Text and Nutrition Facts included.
Style Numbers: 6

8 Graphics

Printing Graphics

The following section describes the graphics printing capability of the Model 8361 and Model 317 printer.



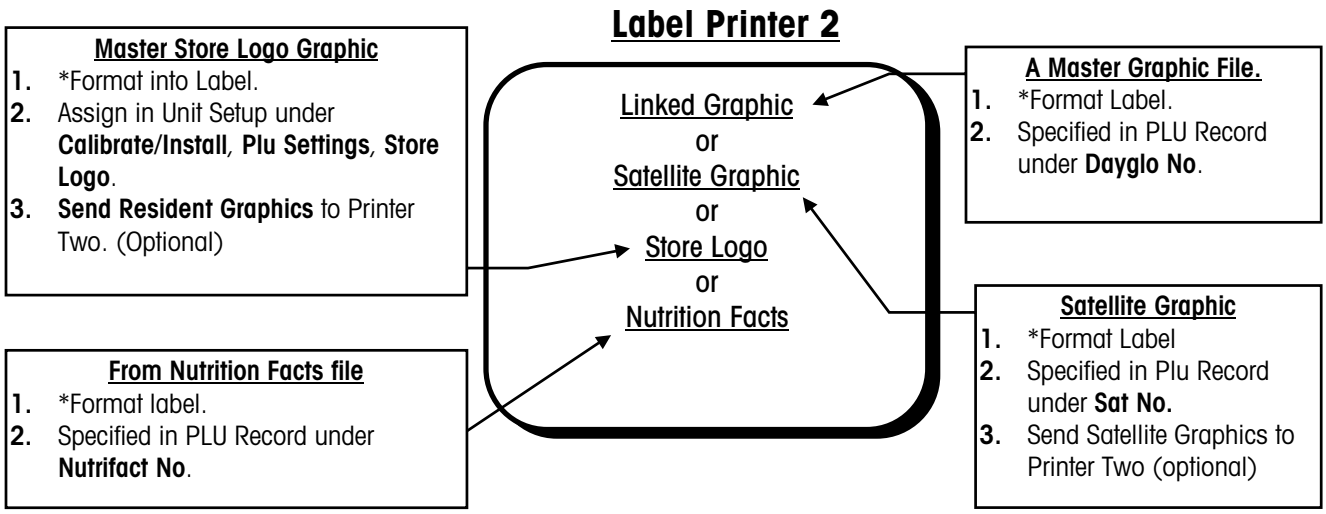
* When formatting Graphics into a label you can accomplish this by creating a custom label format or by choosing a default format that contains the graphics setup.

Up to 4 Graphics can be printed on Printer 1 Label printer, 1 of each of the above.

There are only 2 graphic files, The **Master Graphic File** (stored in the master and may be added to and modified) and the **Satellite Graphic file** (which contains 15 graphics and the **Safe Handling Panel** and cannot be added to or modified)

If label 1 and label 2 both contain a **Satellite Graphic** the same graphic will print on both, only one **Satellite Graphic** can be specified in PLU Record.

Should the **Store Logo Graphic** ever be changed, the Model 8361 will automatically send the Logo to the printer. You can send **Resident Graphics** each time you change it if you wish.



*Format is chosen in **Printer Setup/Printer 2.** When formatting Graphics into a label choose a default format that contains the graphics setup, or use a custom format.

Satellite Graphics

The following graphics are resident in the satellite. The graphics are permanent and cannot be edited, added, or deleted.

Satellite Graphic #1

Satellite Graphic #2

Satellite Graphic #3

Satellite Graphic #4

Satellite Graphic #5

Satellite Graphic #6

Satellite Graphic #7

Satellite Graphic #8

Satellite Graphic #9

Satellite Graphic #10

Satellite Graphic #10

(Version 3.0 software or later)

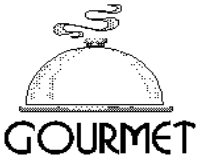
Satellite Graphic #11

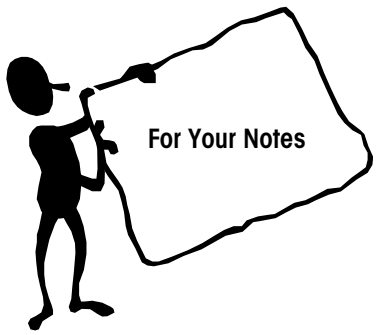
Satellite Graphic #12

Satellite Graphic #13

Satellite Graphic #14

Satellite Graphic #15




For Your Notes

9 Glossary

Standard Glossary

This glossary includes standard terms and some of the specialized terminology and concepts that are used in the weighing industry.

Accumulator—A database that holds a value such as total dollars, total weight, etc.

802.11 - The IEEE standard that specifies a carrier sense media access control and physical layer specifications for 1 and 2 megabit per second wireless LANs.

802.11b - The IEEE standard that specifies a carrier sense media access control and physical layer specifications for 5.5 and 11 megabit per second wireless LANs.

802.3 - The IEEE standard that specifies carrier sense media access control and physical layer specifications for Ethernet LANs.

Access Point - A wireless LAN transceiver that acts as a center point and bridges between wireless and wired networks.

Accuracy—Capability of a measuring device to provide measured values without systematic measurement deviations. The ratio of the error to the full-scale output.

Ambient Conditions—The conditions (humidity, pressure, temperature, etc.) of the medium surrounding a device.

Ambient Temperature—The temperature of the medium surrounding a device.

Analog-Digital Converter—An electronic device designed to convert analog signals (voltages) into digital signals. This type of circuit is used in scales and digital voltmeters.

Analog—In communications, transmission employing variable and continuous wave forms to represent information values, where interpretation by the receiver is an approximation of the encoded value; compare with **Digital**.

ANSI (American National Standards Institute)—The principal standards development body supported by over 1000 trade organizations, professional societies and companies. USA's member body to ISO (International Standards Organization).

ASCII (American Standard Code for Information Interchange)—A system used to represent alphanumeric data; a 7-bit-plus-parity character set established by ANSI and used for data communications and data processing; ASCII allows compatibility among data services; one of two such codes (see EBCDIC) used in data interchange, ASCII is normally used for asynchronous transmission.

Asynchronous—Data transmission that is not related to the timing, or a specific frequency, of a transmission facility; transmission characterized by individual characters, or bytes, encapsulated with start and stop bits, from which a receiver derives the necessary timing for sampling bits; also, start/stop transmission.

Attenuation—The deterioration of signal strength, measured in decibels; opposite of gain.

Auto Zero Maintenance (AZM)—AZM is a way for the scale to gradually re-zero itself to compensate for small changes in zero. Class III, legal-for-trade scales typically use an AZM range of ±0.5 display increments. AZM is active any time the weight on the scale is stable and is within the AZM range near gross zero.

Autotare—An autotare is taken by pressing the TARE key with the empty container on the scale. The scale then displays a zero weight with the net cursor illuminated.

Bandwidth - Specifies the amount of the frequency spectrum that is usable for data transfer. It identifies the maximum data rate that a signal can attain on the medium without encountering significant loss of power.

Bandwidth—The range of frequencies available for signaling; the difference expressed in Hertz between the highest and lowest frequencies of a band.

Baud/baud Rate—Unit of the transmission rate in serial data transmission expressed in bits per second.

Beamwidth - The angle of signal coverage provided by a radio. Beamwidth may by decreased by a directional antenna to increase gain.

Bit (Binary Digit)—The smallest unit of information in a binary system; a 1 or 0 condition.

Bit Parallel, Character Serial—This is a combination of parallel and serial transmission methods where characters are transmitted one at a time using nine wires.

Bit Serial, 20 mA or RS232—A transmission method where each character is transmitted sequentially.

Boot Protocol (BOOTP) - The protocol used for the static assignment of IP addresses to devices on the network.

BPS (Bits Per Second)—The basic unit of measure for serial data-transmission capacity; Kbps for kilo (thousands of) bits per second; Mbps for mega (millions of) bits per second; Gbps for giga (billions of) bits per second; Tbps for tera (trillions of) bits per second.

Bridge - A device used to connect LANs by forwarding packets across connections at the Media Access Control (MAC) layer.

Byte—Data word of length 8 bits, allows the encoding of 256 different characters. All common microprocessors possess a byte structure or a multiple of it in their data words.

Calibration—The comparison and adjustment of load cell outputs against standard test loads. A certified test weight is used in calibration as a known value that is compared with the displayed weight. The scale then adjusts the displayed weight accordingly.

Capacity—The maximum load that can be weighed on a particular scale.

Certificate of Conformance (COC)—A certificate and number issued by NIST under the National Type Evaluation Program that states a submitted device complies with applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices".

Certification Seal—A stamp or seal applied by the weights and measures department to the tested weighing device to attest that certification has been carried out.

Certification—Official testing and sealing of an instrument (balances, weights) according to the certification requirements. The seal (Certification Seal) attests that the instrument has satisfied the certification requirements with respect to its design and metrological characteristics and, in particular, that it conforms with the Calibration Tolerance Limits.

Chain Tare— If a tare is entered using the numeric keypad with the scale in the net weight mode, then the tare value entered is added to the current tare weight value.

Character—Letter, number, punctuation, or any other symbol contained in a message.

Checksum—The total of a group of data items or a segment of data that is used for error-checking purposes. Both numeric and alphabetic fields can be used in calculating a checksum, since the binary content of the data can be added. Just as a check digit tests the accuracy of a single number, a checksum serves to test an entire set of data that has been transmitted or stored. Checksum can detect single-bit errors and some multiple-bit errors.

Class, Scale—An NIST classification system that separates scale types into groups.

Class	**Application or Scale Type** (Reference: 1999 Handbook 44)
I	Precision laboratory weighing.
II	Laboratory weighing, precious metals and gem weighing, grain test scales.
III	All commercial weighing not otherwise specified, grain test scales, retail precious metals and semi-precious gem weighing, animal scales, postal scales, scales used to determine laundry charges, and vehicle on-board weighing systems.
III L	Vehicle, axle load, livestock, railway track scales, crane, hopper (other than grain hopper) scales, and vehicle on-board weighing systems.
IIII	Wheel-load weighers and portable axle-load weighers used for highway weight enforcement.

Clock—An oscillator-generated signal that provides a timing reference for a transmission link; used to control the timing of functions such as sampling interval, signaling rate, and duration of signal elements; an "enclosed" digital network typically has only one master clock.

Communication Protocol—The rules governing the exchange of information between devices on a data link.

Computing Scale—A scale that indicates the money values of amount of commodity weighed at predetermined unit prices.

Conversion Formulas—Useful conversion formulas are as follows:

lb = kg x 2.205
kg = lb x 0.4536
mm = in. x 25.4
in. = mm x 0.03937
ºC = (ºF - 32) / 1.8
ºF = (ºC x 1.8) + 32

Counting Scale—A scale used to count a number of pieces all having the same weight. Electronic counting scales determine the mean individual weight and the weight of all counted parts, and supply the piece number by arithmetic division.

Counts—The total number of display increments available on a particular scale, which is determined by simply dividing the scale capacity by its readability. A scale with a capacity of 10 lb and a resolution of .001 lb would have 10,000 counts.

Creep Error—The change in load cell output occurring with time while under load and with all environmental conditions and other variables remaining the same.—Drift.

Current Loop Interface (20 mA)—Digital peripheral interface for serial data transmission in which the logic states 0 and 1 are represented by the currents 0 mA and 20 mA, e.g. TTY interface in teletype.

Data Bus (serial)—A data bus represents the electrical connection between several components. Bus multipoint connections have a long main cable to which the participants are attached via short spur lines. In contrast to star or ring structures, the bus structure represents a multipoint connection. It can be used for the connection of computers, peripherals and measuring instruments.

Data Link—Any serial data-communications transmission path, generally between two adjacent nodes or devices and without intermediate switching nodes.

Data—Information represented in digital form, including voice, text, facsimile, and video.

Data-Transfer Rate—The average number of bits, characters, or blocks per unit of time transferred from a data source to a data sink.

dBi - A ratio of decibels to an isotropic antenna that is commonly used to measure antenna gain. The greater the dBi value, the higher the gain and, as such, the more acute the angle of coverage.

Declaration of Conformity—Statement by a supplier, claiming under his sole responsibility that a product, process or service is in conformity with a specific standard or other normative document.

Density—The density ("p") of a substance is the quotient of its mass ("m") and volume ("V"); p = m/V.

Department—A grouping of data files that contains similar items, such as produce, meat, seafood, etc.

Differential Quadrature Phase Shift Keying (DQPSK) - Modulation technique used by IEEE 802.11-compliant wireless LANs for transmission at 2Mbps.

Digital Filter—Software-based filtering of very low frequency to negate the effects of vibrations, drafts, etc. for the purpose of achieving more stable indications.

Digital—Referring to communications procedures, techniques, and equipment by which information is encoded as either a binary one (1) or zero (0); the representation of information in digits.

Dip Switches—Switches that are usually in banks of two or more and normally mounted directly to a circuit board that are used to enable or disable certain options or functions.

Dipole - A type of low gain (2.2 dBi) antenna consisting of two (often internal) elements.

Direct Sequence Spread Spectrum (DSSS) - A type of spread spectrum radio transmission that spreads its signal continuously over a wide frequency band.

Directional Antenna - An antenna that concentrates transmission power into a direction thereby increasing coverage distance at the expense of coverage angle. Directional antenna types include yagi, patch and parabolic dish.

Discrimination—Ability of an instrument to react to small variations of load. The discrimination threshold, for a given load, is the value of the smallest additional load that, when gently deposited on or removed from the load receptor, causes a perceptible change in the indication.

Diversity Antennas - An intelligent system of two antennas that continually senses incoming radio signals and automatically selects the antenna best positioned to receive it.

Dot Matrix—(e.g. 5x7 dots) Type of alphanumeric character indication—Display. Also used describe a printer—dot matrix printer.

Downloading—The process of sending data, operating software or other data from a host to another device.

Drift—Slow change with time in the value of a metrological characteristic (e.g. in the display) of a measuring device at constant loading.

Dynamic Host Configuration Protocol (DHCP) - A protocol available with many operating systems that automatically issues IP addresses within a specified range to devices on a network. The device retains the assigned address for a specific administrator-defined period.

Dynamic Weighing— When there is relative motion between the weighing object and the scale during the weighing process. The mass (weight) is recorded while the object is in motion.

EBCDIC (Extended Binary Coded Decimal Interchange Code)—An eight-bit code used primarily in IBM® equipment. The code has 256 characters in the set.

Edit—The process of adding, modifying, or deleting data in a file.

EEPROM (Electrically Erasable Programmable Read Only Memory)— Ready-only, non-volatile, semi-conductor memory that is erasable via a signal input to a certain pin and re-programmable.—See ROM.

EMI (Electromagnetic Interference)—A device's radiation leakage that couples onto a transmission medium, resulting (mainly) from the use of high-frequency-wave energy and signal modulation; reduced by shielding; minimum acceptable levels are detailed by the FCC, based on type of device and operating frequency.

Emulation—The imitation of all or part of one device, terminal, or computer by another, so that the imitating device accepts the same data, performs the same functions, and appears to other network devices as if it were the imitated device.

EPROM (Erasable Programmable Read-Only Memory)—Ready-only, non-volatile, semi-conductor memory that is erasable via ultra violet light and re-programmable.—See ROM.

Erasable Storage—A storage device whose contents can be modified (e.g., Random Access Memory, or RAM) as contrasted with read-only storage (e.g., Read-Only Memory, or ROM).

Ethernet—A popular local area network design (originally designed by Xerox® Corp.) characterized by 10-Mbps baseband transmission over a shielded coaxial cable and employing CSMA/CD as the access control mechanism; standardized by the IEEE as specification IEEE 802.3; referring to the Ethernet design or as compatible with Ethernet.

Even Parity—Data verification method in which each character must have an even number of "on" bits.

Excitation Voltage—The electrical voltage applied to a transducer or load cell for proper operation.

File—A collection of data stored in memory or other storage device such as a floppy or hard disk.

Filter—An electrical circuit designed to pass through certain frequencies and reject others.

Floppy Disk—A removable storage device used on a PC. The most common in use now is the 1.44-megabyte floppy disk.

Flow Control—The procedure or technique used to regulate the flow of data between devices; prevents the loss of data once a device's buffer has reached its capacity.

Frequency Hopping Spread Spectrum (FHSS) - A type of spread spectrum radio transmission in which the transmitter and receiver hop in synchronization from one frequency to another according to a prearranged pattern.

Fresnel Effect - A phenomenon related to line of sight whereby an object that does not obstruct the visual line of sight obstructs the line of transmission for radio frequencies.

Full Duplex (FDX)—Transmission in either direction, at the same time.

Gain - A method of increasing the transmission distance of a radio by the concentration its signal in a single direction, typically through the use of a directional antenna. Gain does not increase a radio's signal strength, but simply redirects it. Therefore, as gain increases, the decrease in angle of coverage is inversely proportional.

Gain—Increased signal power, usually the result of amplification; see Attenuation.

Gateway—A conceptual or logical network station that serves to interconnect two otherwise incompatible networks, network nodes, sub-networks, or devices; performs a protocol-conversion operation across numerous communications layers.

Gigabyte—A term used to express the storage capacity of disk drives, RAM memory, etc. One Gigabyte is equivalent to one billion bytes of data. Commonly referred to as a "Gig"; one Gig, two Gigs, etc.

Gigahertz (GHz) - One billion cycles per second. A unit of measure for frequency.

Gram —The gram (unit symbol g) is the one thousandth part of a kilogram.

Gross Value (G or B)—Indication of the weight of a load on an instrument, with no tare or preset tare device in operation.

Gross Weight—Mass of the weighing sample (net weight) including its container or packaging (tare weight).

Ground—An electrical connection or common conductor that, at some point, connects to the earth. The reference point of an electrical system.

Half Duplex (HDX)—Transmission in either direction, but not at the same time.

Handbook 44—A series of regulations adopted by NIST (National Institute of Standards & Technology) to control the consistency of weighing and measuring devices.

Handshake—One or more special control lines for the timed coordination of the data flow in parallel and serial interfaces by acknowledgments between sender and transmitter. Example: The data receiver reports readiness to receive, the data transmitter then reports that the data are ready for transmission.

Hanging Scale—A scale designed to be hung from an overhead support where the load is suspended below the scale.

Hard Disk—Usually a permanent non-removable storage device used on PC's, usually with a great amount of storage capacity.

Hertz (Hz) - Cycles per second. A unit of measure for frequency.

Hertz (Hz)—A measure of frequency or bandwidth. The same as cycles per second.

Hidden Node - A station on a wireless LAN that attempts to transmit data to another station but, due to its location relative to the others, cannot sense that there is a third station simultaneously communicating with the intended recipient. Lost message and multiple retries is the result.

Humidity, Relative—The moisture content of air relative to the maximum that the air can contain at the same pressure and temperature.

Hysteresis—The maximum difference between load cell output readings for the same applied load. One reading is obtained by increasing the load from zero, and the other by decreasing the load from rated capacity. Usually measured at half rated capacity and expressed in percent of rated capacity.

I/O—Input/Output.

Increasing Load Test—The performance of a scale as increments of test load are successively added to the scale.

Increment—The value of the smallest value that can be reported by the scale (displayed or printed).

Institute of Electrical and Electronic Engineers (IEEE) - A professional society serving electrical engineers through its publications, conferences, and standards development activities. The body responsible for the Ethernet 802.3 and wireless LAN 802.11 specifications.

Interface—A shared boundary; a physical point of demarcation between two devices, where the electrical signals, connectors, timing, and handshaking are defined; the procedures, codes, and protocols that enable two entities to interact for a meaningful exchange of information.

International Organization for Legal Metrology (OIML)—Abbreviation for Organization Internationale de Metrologie Legale. The main task of the OIML involves unification of the administrative and technical regulations for measurement methods and measuring instruments for the field of legal metrology at an international level.

International Standard—An ISO standards document that has been approved in final balloting.

Intrinsically Safe—An instrument that will not produce any spark or thermal effects under normal or abnormal conditions that will ignite a specified gas mixture.

IPX (Internet Packet Exchange)—A product of Novell, Inc. that represents a network protocol for delivery of data packets from one network node to one or more other nodes. It does not provide guarantee of delivery (see SPX).

IR—Abbreviation for InfraRed. Light lying at the extreme range of red and outside of the visible range. The type of light emitted by an LED (Light Emitting Diode).

ISO (International Standards Organization)—This organization handles the international standardization of terms, measurement methods, tolerances and the like in the industrial field.

Isotropic - An antenna (or a theoretic construct of an antenna) that radiates its signal 360 degrees both vertically and horizontally-- a perfect sphere.

Item Number—The number programmed in a PLU file that is used to encode into a printed bar code symbol. The item number is then used by a bar code scanner to identify the commodity (item).

Jitter—The slight movement of a transmission signal in time or phase that can introduce errors and loss of synchronization in high-speed synchronous communications.

Jumper—(1) A wire which connects a number of pins on one end of a cable only, such a looping back Request to Send from Clear to Send. (2) Connector on a printed circuit board of an electronic circuit used to set or initiate certain functions. A jumper is either ON/SHORTED or OFF/OPEN.

Keyboard (keypad)—A device consisting of an array of keys used to initiate functions and/or enter alphanumeric data and special characters.

Keyboard Tare—Keyboard entered tare is used when the empty weight of a container is a known value. The known tare weight is entered using the numeric keys, and the TARE key is pressed.

Kilogram—the kilogram (unit symbol kg) is the base unit of mass in the metric system.

LAN—Local Area Network. Data link between individual computers at different locations, e.g. in an office or throughout the grounds of a factory, typically up to 1 km. The data transmission rate lies between 100 KB/s and 20 MB/s. Local networks are multipoint connections. They operate with serial data transmission and are independent of the post office lines.

LCD—Abbreviation for Liquid Crystal Display; a type of display used many types of devices, including scales, calculators, notebook PC's, etc.

LED (Light Emitting Diode)—Also called light diode or luminescence diode. Available colors: red, green, yellow, and orange. An LED is a semiconductor diode that emits light when a current of about 10 mA flows through it. Its illuminating power is high, but its current consumption is also relatively high. Can be read without external light.—Readout.

Line of Sight - An unobstructed straight line between two transmitting devices. Line of sight is typically required for long-range directional radio transmission. Due to the curvature of the earth, the line of sight for devices not mounted on towers is limited to 16 miles (26km).

Linearity—Linearity is a measure of how well the scale is capable of following the linear relationship between the loaded weight and the display value. The characteristic curve of a balance is envisaged as a straight line between zero and maximum load. The non-linearity defines the width of the band within which a plus or minus deviation of the measured value from the ideal characteristic line can occur.

Linearization—The non-linearity of the characteristic curve of a weighing cell leads to measurement errors and various measures are thus employed in an attempt to keep the linearity error small. Modern linearizations are, e.g. correction of the characteristic curve by corrections stored in the microprocessor or built-in calibration weights that are weighed singly and together in the calibration process. The microprocessor determines the actual linearity deviation and then corrects it.

Load Cell—A device that produces an electrical output signal proportional to the applied weight or force.

Load—The weight or force applied to the load cell.

Loopback—Type of diagnostic test in which the transmitted signal is returned to the sending device after passing through all, or a portion of, a data communications link or network.

Loss—Reduction in signal strength, expressed in decibels; also, Attenuation; opposite of gain.

Manual Tare (Keyboard Tare)—The operator enters a tare value manually and presses the TARE key.

Mark—Presence of signal. In telegraph communication, a mark represents the closed condition or current flowing. A mark impulse is equivalent to a binary 1.

Mass—The physical quantity mass (m) is the property of matter of a body expressed in terms of both its inertial effects with respect to a change in its state of motion and the attraction it exerts on other bodies. The mass of an object is independent of its location. If is determined by comparison with bodies of known mass, for example by weighing. The embodiment of a unit of mass and its fractions or multiples is called weights or weight pieces. The base unit of mass is the kilogram or kg.

Master—In a scale network, the master acts like a PC File Server. The master contains all of the data records. A satellite on the network can retrieve the record and use it locally for a transaction. The master on the network keeps track on each transaction and adds it into an accumulator database. The METTLER TOLEDO master/satellite network is commonly called a TNET (Toledo Network). The TNET can support up to 24 satellites.

Maximum Capacity (Max)—Maximum weighing capacity, not taking into account the additive tare capacity.

Maximum Load Capacity—The maximum load a balance or scale can accommodate without damage. It is always greater or equal to the maximum load plus the maximum tare load. Abbreviation: Lim.

Maximum Load—Upper limit of the weighing range without consideration of the additional maximum tare.

Maximum Safe Load (Lim)—Maximum static load that can be carried by the instrument without permanently altering its metrological qualities.

Megabyte—A term used to express the storage capacity of disk drives, RAM memory, etc. One Megabyte is equivalent to one million bytes of data. Commonly referred to as a "Meg"; one Meg, two Megs, etc.

Megahertz (MHz) - One million cycles per second. A unit of measure for frequency.

MELSI—Mettler Large Scale Integration. A proprietary circuit that performs analog-to-digital weight conversion.

Memory—A type of storage used in PC's and scales, generally referred to as RAM (Random Access Memory). The RAM in a PC will only store data as long as the power is on. The RAM used for data storage in scales is usually battery backed in case of a power loss.

Menu—A group of selections or options on a screen.

Metric Weight—A unit of weight based on the kilogram (1,000 grams).

Metrology—The science of measurement, measurement systems, and units.

Minimum Capacity (Min)—Value of the load below, which the weighing results, may be subject to an excessive relative error.

M—Mega; designation for one million (e.g., Mbps or megabyte).

m—Milli; designation for one thousandth.

Modem (Modulator-Demodulator)—A device used to convert serial digital data from a transmitting terminal to a signal for transmission over a telephone channel, or to reconvert the transmitted signal to serial digital data for acceptance by a receiving terminal.

Modulation - Any of several techniques for combining user information with a transmitter's carrier signal.

Monitor—A display screen used on PC's and other devices.

Motion Detection—The process of sensing a rate of change of applied load to determine when a given weighing system has reached a state of equilibrium.

Multipath - The echoes created as a radio signal bounces off of physical objects.

MultiRange—A scale whose weighing range is divided into partial weighing ranges with different scale division values. Switching of the division values occurs automatically with increasing and decreasing load at the same display values. **n = (max.)/d**

Net Weight—The weight of a weighing sample after deduction of the weight of its packaging or of the transport device (tare weight) with which it had previously been weighed.

Network—An interconnected group of Nodes; a series of points, nodes, or stations connected by communications channels; the assembly of equipment through which connections are made between data stations.

NIST—Abbreviation for the National Institute of Standards & Technology.

Noise—An unwanted signal that can contribute to errors in measurement.

Notch Filter—A tunable filter used to filter out one specific frequency below the lowpass filter frequency.

NTEP—Abbreviation for the National Type Evaluation Program. An NIST procedure where devices submitted to NTEP are evaluated using Handbook 44 as a reference. See Certificate of Conformance (COC).

Number of Scale Divisions—Quotient calculated from maximum load (max.) and scale division

Odd Parity— A data verification method in which each character must have and odd number of "on" bits.

Omni-Directional Antenna- An antenna that provides a 360 degree transmission pattern. These types of antennas are used when coverage in all directions is required.

Optical Isolation—Two networks or devices that are connected only through and LED transmitter and photoelectric receiver and with no electrical continuity between the two devices.

Over/Under Indication—A scale that is capable of indicating weights greater or lesser than a predetermined weight.

Overload Rating, Safe—Maximum load in percent of rated capacity which can be safely applied without damaging or producing a permanent shift in performance characteristics beyond those specified.

Parabolic - A concave or dish-shaped object. Often refers to dish antennas. Peer-to-Peer Network: A network design in which each computer shares and uses devices on an equal basis.

Parallel Transmission—Transmission mode that sends a number of bits simultaneous over separate lines.

Parity Bit—A bit that is set at "0" or "1" in a character to ensure that the total number of "on" bits in the data field is even or odd. (See Even/Odd Parity)

Parity Check—The addition of non-information bits that make up a transmission block to ensure that the total number of 1s is always either even or odd.

Password—A set of characters or numbers that must be typed in to gain access to certain functions on a scale or computer.

PC—A common term referring to a Personal Computer.

Pending File—A temporary file that will be used to update a regular file.

Pin Assignment—In electronic instruments, this term refers to the assignment of the individual connector contacts to certain signals. Some types of commonly used connectors used on PC's and peripherals are internationally standardized.

Platter—The platform of a scale on which the load is placed.

PLU—Abbreviation for Price Look Up. The PLU number is a data record's index number used to store it in a data file, and by an operator to retrieve the record.

Poise—A moveable weight mounted upon or suspended from a weighbeam bar and used in combination with graduations on the bar to indicate weight values.

Polarity—Any condition in which there are two opposing voltage levels or changes, such as positive and negative.

Port—A point of access into a computer, a network, or other electronic device; the physical or electrical interface through which one gains access; the interface between a process and a communications or transmission facility.

Precision—The degree to which a scale conforms to a predetermined specification as well as its ability to successfully repeat actions within closely specified limits.

Prepackaging Scale, Prepack—A scale or weighing mode designed for weighing random weight prepackaged items.

PROM (Programmable Read Only Memory)—Nonvolatile memory device which retains its contents when the power supply is switched off. They can be only read (i.e. not written to) by the processor and contain programs and important device parameters. They are installed as integrated components.

Proportional Tare—Proportional Tare (SmartTouch Master must be Version 3.0 or later) is stored in the Tare2 field. By-Weight tares are stored in the Tare1 field. The Net Weight will be the gross weight minus the By-Weight Tare, minus the proportional tare, times the Gross Weight, minus By-Weight Tare value. The mathematical representation is as follows: Net Weight = (Gross Wgt - Tare1) - (Tare2 x (Gross Wgt - Tare1))

Protocol—Formal set of rules governing the format, timing, sequencing, and error control of exchanged messages on a data network; may be oriented toward data transfer over an interface, between two logical units directly connected, or on an end-to-end basis between two users over a large and complex network.

Pushbutton Zero—Pushbutton zero is a way for the operator to capture a new gross zero reference point. The weight on the scale must be stable and within the pushbutton zero capture range of the original zero recorded during calibration.

Radio Frequency (RF) - A generic term for radio-based technology.

RAM (Random Access Memory)—Storage device into which data can be entered (written) and read; compare with ROM.

Range - A linear measure of the distance that a transmitter can send a signal.

Readability—The smallest possible weight change detectable on the scale readout and a function of the external resolution.

Receiver Sensitivity - A measurement of the weakest signal a receiver can receive and still correctly translate it into data.

Repeatability, Reproducibility—The ability of a scale to duplicate the same value when identical samples are loaded and reloaded in succession. Simply put, it's getting the same value repeatedly.

Resolution—The smallest possible weight change detectable on the scale readout. A function of the external resolution.

Reverse Polarity TNC (RP-TNC) - A connector type unique to Aironet radios and antennas. Part 15.203 of the FCC rules covering spread-spectrum devices limits the types of antennas that may be used with transmission equipment. In compliance with this rule, Aironet, like all other wireless LAN providers, equips its radios and antennas with a unique connector to prevent attachment of non-approved antennas to radios.

RFI—Radio Frequency Interference

Roaming - A feature of some access points that allow users to move through a facility while maintaining unbroken connection to the LAN.

ROM (Read-Only-Memory)—A data storage device, the contents of which cannot normally be altered; storage in which writing-over is prevented; also, permanent storage; compare with RAM.

RS-232 Interface—A digital serial synchronous interface complies with the EIA RS-232 standard for modem connections for data transmission over the telephone lines. The standard is suitable for the description of computer interfaces as, e.g. connector design, pin assignment and signals are described. The use of modem control lines is not defined for the connection of computers and often leads to difficulties in data transmission.

RS-422—Electrical characteristics of balanced-voltage digital interface circuits.

RS-423—Electrical characteristics of unbalanced-voltage digital interface circuits.

RS-485—An interface similar to RS422 that has improved drive capabilities and can be used for multiple device networking.

Sample Rate—The number of samples per unit of time that a circuit or device measures the input signal.

Scale divisions, Number of (n)—The quotient of the capacity divided by the value of the scale division (e). **n = Capacity / e**

Scale Divisions, Value of (d)—The value of the scale division, expressed in units of mass, is the smallest subdivision of the scale.

Scale division—Smallest weighing increment of a scale.

Sealing, Security Seal—1. Eliminating access to certain components by attaching objects (seals) that are usually metallic. A safety seal is stamped on these objects by means of pliers (lead-sealing pliers). 2.The official process of attaching a seal to a measuring instrument, e.g. the main seal or the EC certification seal after an instrument has been certified, or any required safety seal. A locking seal is understood to refer to the kind of seal that simultaneously secures the housing of a balance to prevent it being opened.

Sensitivity—The smallest possible weight change detectable on the scale readout. A function of the external resolution.

Serial Data Transfer—The consecutive transmission of data over one or several lines.—Data Transmission.

Serial Transmission—The most common transmission mode in which information bits are sent sequentially on a single data channel.

Shielding—Protective enclosure or surrounding for and electrical circuit or transmission medium, such as coaxial cable, designed to minimize electromagnetic and radio frequency leakage and interference.

Shift Test—A test intended to disclose the weighing performance of a scale under off-center loading.

SI Units—Units of the International System of Units (SI = Systeme International d'Unites). The system consists of seven base units (meter, kilogram, second, ampere, Kelvin, mol, candela), a number of derived units (created by combining several base units e.g. Newton $N=m \cdot kg \cdot s^{-2}$), and certain supplementary units (e.g. radian rad for a plane angle).

Span Stability—The capability of an instrument to maintain the difference between the indication of weight at maximum capacity and the indication at zero over a period of use within specified limits.

Span—The full scale capacity less the zero or minimum value.

Specific Gravity—The ratio or mass of any material to the mass of the same volume of pure water at 4ºC.

Spread Spectrum - A radio transmission technology that "spreads" the user information over a much wider bandwidth than otherwise required in order to gain benefits such as improved interference tolerance and unlicensed operation.

Stability—The measure of a scale's ability to give the same weight or count reading at different points in time. Phenomena affecting stability include creep, vibration, temperature, and humidity.

Start Bit—In asynchronous transmission, the first bit or element in each character, normally a space, which prepares the receiving, equipment for the reception of a character.

Static Weighing— When an object is placed on the scale either manually or automatically for a sufficient time to record the mass (weight). After the weight is recorded, it is removed from the scale.

Stop Bit—In asynchronous transmission, the last bit, used to indicate the end of a character.

Strain Gage—A measuring element for converting force, pressure, tension, etc. into an electrical signal, usually by a change in resistance of the device.

String—Any combination of alphanumeric characters (letters, numbers and special characters.)

Tare—Tare is the empty weight of a container or vehicle. Tare is normally used to determine the net weight of the contents of the container. Tare is used in several different ways.

Temperature Range, Compensated—The range of temperature over which the load cell is compensated to maintain the rated output and zero balance within specified limits.

Test Weight—A calibrated weight used to calibrate scales.

Timeout—Expiration of predefined time period, at which point some specified action occurs. In communications, timeouts are employed to avoid unnecessary delays and improve traffic flow. They are used, for example, to specify maximum response times to polling and addressing before a procedure is automatically reinitiated.

TNET—Toledo Network. An RS485 communications network used in the Retail Master/Satellite network where a single master supports up to 24 satellites. The satellites retrieve PLU data from the master through the high-speed network as needed. The standard TNET runs at 345k baud.

Tolerance—A value fixing the limit of allowable error or departure from true performance or value, as established by authority of usage.

Tonne—A special name for the megagram (unit symbol t) which is equivalent to one thousand kilograms: $1\ t = 10^3\ kg$.

Troy Weight—A series of units of weight based on a twelve ounce pound using ounces of 20 pennyweight or 480 grams.

TTL—Transistor-to-Transistor logic. A type of solid state logic that uses only transistors to form the logic gates.

Vacuum Florescent Display—A type of display that illuminates like a light bulb. VFD displays are used when visibility is required in both brightly lit and dimly lit areas.

Weighing Range—The range, within which, a balance may be used for weighing. The limits of a weighing range are called minimum load (lower limit) and maximum load (upper limit).

Weighing—Determining the mass (weight) of an object. Weight force as the product of the mass of a body and the local acceleration due to Gravity. Weight or weight piece as the embodiment of a mass unit. In commerce and industry, the result of a weighing can continue to be referred to as weight (DIN 1305).

Weighment—A single complete weighing operation.

Weight Tolerance—A term which describes the difference between the admissible plus or minus deviations and a specified weight value.

Weight Value—(lb or kg, etc.)

Wired Equivalent Privacy (WEP) - Optional security mechanism defined within the 802.11 standard designed to make the link integrity of the wireless medium equal to that of a cable.

X-ON/X-OFF (Transmitter On/Transmitter Off)—Control Characters in a serial communication data stream used for flow control, instructing a terminal to start transmission (X-ON) and end transmission (X-OFF).

Yagi - A type of often cylindrical directional antennas.

Zero Capture at Power-up—The scale attempts to capture a new center of zero when power is applied. Weight on the scale must be stable and within the zero capture range at power-up. The zero capture range is symmetrical around the original zero recorded during calibration.

Zero—Zero is the empty weight of the scale platform. The gross zero reference is recorded during the calibration procedure. The zero reference recorded during calibration can be modified to compensate for changes that are due to material buildup on the scale or temperature change.

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